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Print Edition September 8th 2007

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A nuclear revival is welcome so long as the industry does not repeat its old mistakes: leader

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Politics this week

Sep 6th 2007
From The Economist print edition

A report from the United States Government Accountability Office said that **Iraq's** government had failed to take the political and military steps required to cut sectarian violence, and had met only three of the 18 benchmarks laid down by Congress in May. In the run-up to a report by General David Petraeus, the American commander in Iraq, on the surge of troops into Baghdad, the general's deputy said that the next few months would be critical. See article

With Democrats gearing up for a fight over General Petraeus's recommendations, **George Bush** paid a surprise visit to Iraq. He celebrated progress in Anbar province, once an al-Qaeda stronghold.

AFP

As more senior Republicans distanced themselves from him, **Larry Craig** resigned, then said he may not, as a senator for Idaho. An opponent of gay marriage, Mr Craig has pleaded guilty to “disorderly conduct” in a men's lavatory.

The Republican presidential candidates held another debate. Absent from the proceedings was **Fred Thompson**, who finally announced his candidacy. The actor and conservative stalwart has held off making his putative run official for several months now.

The election calendar for the presidency was thrown into confusion once again when Michigan set January 15th for its **party primaries**, a week before the expected date of New Hampshire's ballot. The national parties are furious with the states for jumbling the nomination process.

Hacked off

China denied, as a reflection of a “cold-war mentality”, reports that its armed forces were behind “cyberattacks”, in which hackers had tried to penetrate the computer network of the Pentagon. Britain's Foreign Office was also said to have been tested by Chinese hackers. See article

George Bush arrived in **Australia** for the summit of the Asia-Pacific Economic Co-operation forum. He met John Howard, Australia's prime minister, for talks dominated by Iraq, terrorism and climate change. See article

As part of the process started by the six-country agreement reached in February, **American** and **North Korean** officials held talks in Geneva. Both sides agreed that North Korea had promised to reveal and disable all its nuclear facilities this year. But America denied the claim that it had agreed to remove North Korea at once from its list of states that support terrorism. See article

At least 24 people were killed in two bomb blasts near the headquarters of **Pakistan's** army in Rawalpindi. The blasts come at a time of political uncertainty. Nawaz Sharif, a former prime minister, has said he will return from exile in Saudi Arabia on September 10th. The Saudi government has reportedly tried to dissuade him.

The army-backed government in **Bangladesh** arrested Khaleda Zia, prime minister until last October, and charged her with corruption. She was detained in the idle parliament building in Dhaka, which also houses her main political rival, Sheikh Hasina Wajed. See article

Felix's fury

Hurricane Felix, the second category five Caribbean storm in three weeks, caused heavy flooding and

some mudslides in Nicaragua and Honduras, killing at least 38 people and destroying thousands of flimsy homes. Separately, a further seven people were killed as a Pacific storm swept over Mexico's Baja California peninsula.

In **Jamaica's** general election, the opposition Jamaica Labour Party won a narrow victory, ending 18 years of rule by the centre-left People's National Party. Fears of electoral violence proved groundless. See article

AP

The FARC guerrillas welcomed a decision by **Colombia's** president, Álvaro Uribe, to ask his leftist Venezuelan counterpart, Hugo Chávez, to try to secure an agreement under which the rebels would release their kidnapped hostages in return for the freeing of guerrilla prisoners. See article

Work started on a $5.3 billion scheme to expand the capacity of the **Panama Canal** and allow it to take bigger ships.

A grim tally

EPA

The **Lebanese** army took control of the Nahr al-Bared refugee camp after a siege lasting more than three months to oust militants of the Fatah al-Islam group linked to al-Qaeda. The authorities said at least 222 militants were killed and 200 captured, with a loss of at least 42 civilians and 163 soldiers during the siege.

Iran's supreme leader, Ayatollah Ali Khamenei, sacked the head of the powerful Revolutionary Guards and made Akbar Hashemi Rafsanjani, a pragmatic former president, head of the influential assembly of experts.

Britain's former prime minister, Tony Blair, now a peace envoy to the Middle East, was set to unveil a plan to get **Israeli** and **Palestinian** businessmen to co-operate as a step towards peace. Meanwhile, Palestinians in the West Bank village of Bilin won their case in Israel's Supreme Court to reroute Israel's barrier, which would have cut the villagers off from their farmland.

Fighting broke out in eastern **Congo's** Kivu region between government forces and those of Laurent Nkunda, a rebel general whose troops were supposed to have been integrated into a revamped Congolese army. The UN sent its own forces to help the government with logistics. Fears grew that Rwanda's Tutsi-led government might help Mr Nkunda, himself a Tutsi. See article

Foiling the plot

German security forces arrested three suspects thought to be planning a massive terrorist attack on American targets in Germany, including the Ramstein air base, and on Frankfurt airport. The three men, said to be linked to al-Qaeda, had all been to training camps in Pakistan. The arrests came a day after eight terrorist suspects were apprehended in Denmark. See article

A court in **Switzerland** convicted four air-traffic controllers of negligent homicide over a 2002 mid-air collision in which 71 people, most of them Russian schoolchildren, were killed. But it decided not to jail any of them.

Luciano Pavarotti, the world's most loved opera singer, died at his home in the northern Italian town of Modena after battling cancer. The 71-year-old tenor popularised many opera works, singing in football stadiums as well as grand opera houses.

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Business this week

Sep 6th 2007
From The Economist print edition

Financial and banking regulators in America, including the Federal Reserve, issued a joint statement that encouraged **banks and mortgage lenders** to take “appropriate loss mitigation strategies to preserve homeownership”, including restructuring the loans of those who are at risk of losing their homes. The communiqué forms part of a government-wide effort, including a package of measures unveiled by George Bush on August 31st, to help some homeowners with mortgage difficulties. A surge in defaults among holders of subprime mortgages has fed the recent problems in the credit markets. See article

The OECD gave its first reaction to the turmoil in **financial markets**. The club for industrialised countries said that the shake-out in America's housing market had caused it to lower its forecast for America's economic growth rate in 2007. It also thought “there may be a case for some easing” of the federal fund rate by the Fed.

Mattel issued a third safety recall. This time some 850,000 Chinese-made toys, including Barbie playsets, were deemed to have “impermissible levels of lead”. As Congress scheduled a hearing for mid-September on product safety, China stepped up its campaign to reassure consumers that goods made in the country are safe.

Not all plane sailing

Boeing pushed back the date of the first test flight for its 787 **Dreamliner** to either November or December. Despite the shortened length of the aircraft's test programme, Boeing said the first deliveries of the Dreamliner remain on schedule for next May.

After 18 months of negotiations **Gaz de France** and **Suez** at last agreed to merge, creating the world's third-biggest utility. The energy companies struck a deal after some prodding by Nicolas Sarkozy, France's president, for Suez to spin off its environmental-services arm. The French government retains a blocking stake in the entity, raising questions about how it will use its influence and whether the merger is against the spirit of the European Commission's energy-liberalisation policy. See article

Algeria's state-owned power company rescinded a deal to develop a $7 billion gas project with two **Spanish energy** firms. Sonatrach blamed the Spanish for delays and cost overruns, described as an “industrial fiasco”; the Spanish firms called it an illegitimate appropriation by the state. All parties are seeking arbitration.

MetroPCS, a mobile-phone operator, proposed buying **Leap**, a rival, for around $5.5 billion. Both companies direct their business at the cheaper end of America's mobile-phone market.

Coming through

Most of America's carmakers had a bad month in August. The surprising exception was **General Motors**, which sold around 6% more cars and trucks compared with the same month last year. **Ford's** sales fell by more than 14%, allowing Toyota to shift into second place behind GM in terms of total sales for the month.

Nissan appointed Alain Dassas, the head of Renault's Formula One team, as its chief financial officer. The position was vacant for four years, but Carlos Ghosn, the chief executive of both Nissan and Renault (which holds a 44% stake in Nissan), wants someone to concentrate on increasing Nissan's shareholder value.

It was a busy week for Mr Ghosn, who also signed an agreement in Tangiers to open a factory in the city. **Carmakers** are increasingly keen to make low-cost no-gadget models for export to emerging markets. PSA Peugeot Citroën unveiled a turnaround strategy this week that emphasised the importance of China,

Russia and South America to its future growth.

Apple cut the price of its **iPhone** from $599 to $399 to boost sales. Its share price fell on the news.

Microsoft lost a vote at the International Organisation for Standardisation (ISO) to have its Office Open XML file format accepted as the industry-wide standard.

Valentino Garavani announced his retirement from the **Valentino** fashion group he founded. Mr Garavani, who counted Jackie Onassis and Elizabeth Taylor among his clients, recently celebrated 45 years in the business. The fashion house, which is owned by a private-equity firm, named Alessandra Facchinetti, a former Gucci designer, as its new creative director.

It costs more bread

Wheat prices continued to rise amid fears that Australia's imminent harvest will be smaller than forecast because of drought. Wheat from Australia was meant to help replenish worldwide stocks, which are depleted in part because of flooding that damaged the harvest in Europe. See article

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KAL's cartoon

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Illustration by Kevin Kallaugher

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Energy

Nuclear power's new age

Sep 6th 2007
From The Economist print edition

A nuclear revival is welcome so long as the industry does not repeat its old mistakes

Get article background

IN MARCH 1986 this newspaper celebrated “The Charm of Nuclear Power” on its cover. The timing wasn't great. The following month, an accident at a reactor at Chernobyl in Ukraine spread radioactivity over Europe and despair in the Western world's nuclear industry.

Some countries never lost their enthusiasm for nuclear power. It provides three-quarters of French electricity. Developing countries have continued to build nuclear plants apace. But elsewhere in the West, Chernobyl, along with the accident at Three Mile Island in Pennsylvania in 1979, sent the industry into a decline. The public got scared. The regulatory environment tightened, raising costs. Billions were spent bailing out lossmaking nuclear-power companies. The industry became a byword for mendacity, secrecy and profligacy with taxpayers' money. For two decades neither governments nor bankers wanted to touch it.

Now nuclear power has a second chance. Its revival is most visible in America (see article), where power companies are preparing to flood the Nuclear Regulatory Commission with applications to build new plants. But the tide seems to be turning in other countries, too. Finland is building a reactor. The British government is preparing the way for new planning regulations. In Australia, which has plenty of uranium but no reactors, the prime minister, John Howard, says nuclear power is “inevitable”.

Managed properly, a nuclear revival could be a good thing. But the industry and the governments keen to promote it look like repeating some of the mistakes that gave it a bad name in the first place.

It's going nuclear's way

Geopolitics, technology (see article), economics and the environment are all changing in nuclear power's favour. Western governments are concerned that most of the world's oil and gas is in the hands of hostile or shaky governments. Much of the nuclear industry's raw material, uranium, by contrast, is conveniently located in friendly places such as Australia and Canada.

Simpler designs cut maintenance and repair costs. Shut-downs are now far less frequent, so that a typical station in America is now online 90% of the time, up from less than 50% in the 1970s. New “passive safety” features can shut a reactor down in an emergency without the need for human intervention. Handling waste may get easier. America plans to embrace a new approach in which the

most radioactive portion of the waste from conventional nuclear power stations is isolated and burned in “fast” reactors.

Technology has thus improved nuclear's economics. So has the squeeze on fossil fuels. Nuclear power stations are hugely expensive to build but very cheap to run. Gas-fired power stations—the bulk of new build in the 1980s and 1990s—are the reverse. Since gas provides the extra power needed when demand rises, the gas price sets the electricity price. Costly gas has therefore made existing nuclear plants tremendously profitable.

The latest boost to nuclear has come from climate change. Nuclear power offers the possibility of large quantities of baseload electricity that is cleaner than coal, more secure than gas and more reliable than wind. And if cars switch from oil to electricity, the demand for power generated from carbon-free sources will increase still further. The industry's image is thus turning from black to green.

Nuclear power's moral makeover has divided its enemies. Some environmentalists retain their antipathy to it, but green gurus such as James Lovelock, Stewart Brand and Patrick Moore have changed their minds and embraced it. Public opinion, confused about how best to save the planet, seems to be coming round. A recent British poll showed 30% of the population against nuclear power, compared with 60% three years ago. An American poll in March this year showed 50% in favour of expanding nuclear power, up from 44% in 2001.

Fear of fission

Yet the economics of nuclear still look uncertain. That's partly because its green virtues do not show up in its costs, since fossil-fuel power generation does not pay for the environmental damage it does. But it is also because nuclear combines huge fixed costs with political risk. Companies fear that, after they have invested billions in a plant, the political tide will turn once more and bankrupt them. Investors therefore remain nervous.

How, then, to get new plants built? America's solution is to lard the industry with money. That is the wrong answer.

Nuclear and other clean energy sources do indeed deserve a hand from governments—but through a carbon tax which reflects the benefits of clean energy, not through subsidies to cover political risk. Exposure to public nervousness is a cost of doing business in the nuclear industry, just as exposure to volatile prices is a cost in the gas industry.

It may be that fears of nuclear power are overblown: after all, the UN figure of around 4,000 eventual deaths as a result of the Chernobyl accident is lower than the official annual death-rate in Chinese coal mines. Yet there are good reasons for public concern. Nuclear waste is difficult to dispose of. More civil nuclear technology around the world increases the chance of weapons proliferation. Terrorists could attack plants or steal nuclear fuel. Voters will support nuclear power only if they believe that governments and the nuclear industry are doing their best to limit those risks, and that such risks are small enough to be worth taking in the interests of cheap, clean energy.

One of the reasons why the public turned against nuclear power last time round is that it found itself bailing the industry out. It would be wrong, not just for taxpayers but also for the industry, to set up another lot of cosy deals with governments. The nuclear industry needs to persuade people that it is clean, cheap and safe enough to rely on without a government crutch. If it can't, it doesn't deserve a second chance.

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Belgium

Time to call it a day

Sep 6th 2007
From The Economist print edition

Sometimes it is right for a country to recognise that its job is done

Illustration by Claudio Munoz

A RECENT glance at the Low Countries revealed that, nearly three months after its latest general election, Belgium was still without a new government. It may have acquired one by now. But, if so, will anyone notice? And, if not, will anyone mind? Even the Belgians appear indifferent. And what they think of the government they may well think of the country. If Belgium did not already exist, would anyone nowadays take the trouble to invent it?

Such questions could be asked of many countries. Belgium's problem, if such it is, is that they are being asked by the inhabitants themselves. True, in opinion polls most Belgians say they want to keep the show on the road. But when they vote, as they did on June 10th, they do so along linguistic lines, the French-speaking Walloons in the south for French-speaking parties, the Dutch-speaking Flemings in the north for Dutch-speaking parties. The two groups do not get on—hence the inability to form a government. They lead parallel lives, largely in ignorance of each other. They do, however, think they know themselves: when a French-language television programme was interrupted last December with a spoof news flash announcing that the Flemish parliament had declared independence, the king had fled and Belgium had dissolved, it was widely believed.

No wonder. The prime minister designate thinks Belgians have nothing in common except “the king, the football team, some beers”, and he describes their country as an “accident of history”. In truth, it isn't. When it was created in 1831, it served more than one purpose. It relieved its people of various discriminatory practices imposed on them by their Dutch rulers. And it suited Britain and France to have a new, neutral state rather than a source of instability that might, so soon after the Napoleonic wars, set off more turbulence in Europe.

The upshot was neither an unmitigated success nor an unmitigated failure. Belgium industrialised fast; grabbed a large part of Africa and ruled it particularly rapaciously; was itself invaded and occupied by Germany, not once but twice; and then cleverly secured the headquarters of what is now the European Union. Along the way it produced Magritte, Simenon, Tintin, the saxophone and a lot of chocolate. Also *frites*. No doubt more good things can come out of the swathe of territory once occupied by a tribe known to the Romans as the Belgae. For that, though, they do not need Belgium: they can emerge just as readily from two or three new mini-states, or perhaps from an enlarged France and Netherlands.

Brussels can devote itself to becoming the bureaucratic capital of Europe. It no longer enjoys the heady atmosphere of liberty that swirled outside its opera house in 1830, intoxicating the demonstrators whose protests set the Belgians on the road to independence. The air today is more fetid. With freedom now

taken for granted, the old animosities are ill suppressed. Rancour is ever-present and the country has become a freak of nature, a state in which power is so devolved that government is an abhorred vacuum. In short, Belgium has served its purpose. A praline divorce is in order.

Belgians need not feel too sad. Countries come and go. And perhaps a way can be found to keep the king, if he is still wanted. Since he has never had a country—he has always just been king of the Belgians—he will not miss Belgium. Maybe he can rule a new-old country called Gaul. But king of the Gauloises doesn't sound quite right, does it?

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Education

Schools unchained

Sep 6th 2007
From The Economist print edition

How to go about giving parents the schools they want

Getty Images

SOMETHING extraordinary is happening in London this week: in Lambeth, one of the city's poorest boroughs, 180 children are starting their secondary education in a brand new school. The state-funded school was set up, without a fancy business sponsor, by parents who were fed up with the quality of local education. In countries with more enlightened education systems, this would be unremarkable. In Britain, it is an amazing achievement by a bunch of desperate and determined people after years of struggle (see article).

Britain's schools are in a mess. Although British schoolchildren perform reasonably well compared with those in other countries, average standards are not improving despite billions in extra spending, and a stubbornly long tail of underachievers straggles behind. A couple of years ago, a consensus emerged among reformers that councils had too much control and parents too little. There was radical talk in both main parties of encouraging parental choice as the best way to drive up standards: if schoolchildren were free to vote with their feet, taking public funding with them, new schools would open and existing ones would improve in order to compete.

That talk has died down. Gordon Brown, the prime minister, is backing away from some of his predecessor's hard-won measures to loosen local government's control over schools and make them more responsive to parental demand. Tony Blair's academies—state-funded schools with some autonomy over vital matters such as syllabus and teachers' pay—have been told to pay more heed to the national curriculum and the demands of local councils. In May the authority in charge of picking the winner in the first competition to open a school under Mr Blair's rules spurned new entrants and plumped for the council's bid.

One might have expected more from the Conservatives, who stood for election in 2005 on a pledge to bring in school vouchers. Yet the Tory policy group charged with thinking deep thoughts about public services paid only lip service to parent power in its report on September 4th (see article). Where schools are failing, it said, parents or charities should get taxpayers' money to open new ones. But only 2.9% are actually failing, on official definitions. And another proposal, that children in failing schools get extra funding if they go elsewhere, was so lacking in detail as to be meaningless.

Setting parents free

Worry about underperforming schools is hardly confined to Britain: in America, in Italy, in Germany, even in once-proud France (see article) education is a hot-button topic. Yet a number of countries seem to

have cracked it. Although specific problems differ in different societies, parental choice is at the heart of most successful solutions. What are the lessons?

The first is that if a critical mass of parents wants a new school and there is a willing provider, local government should be required to finance it as generously as it does existing state schools. The second is that if a charity—or business—wants to open a school in the hope that children will come, then taxpayers' money should follow any that do. Third, rules about what, where and how schools teach should be relaxed—though not abandoned—to avoid stifling innovation and discouraging newcomers with big ideas. In any event, public-examination results would give parents the information they needed to enforce high standards.

These proposals may seem radical, yet parents in the Netherlands have had the right to demand new schools since 1917, and those in Sweden have been free since 1992 to take their government money to any school that satisfies basic government rules. Such freedoms are wildly popular: in the Netherlands 70% of children are educated in private schools at the taxpayers' expense; in Sweden 10% already are. In both countries state spending on education is lower per head than in Britain, and results are better. It doesn't take a genius IQ—just a little political courage—to draw the correct conclusion.

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Credit

Beware miracle cures

Sep 6th 2007
From The Economist print edition

Trust in the markets, not the politics

Illustration by David Simonds

WHERE there is crisis, there is opportunity. That is something politicians surveying the wreckage of the subprime-mortgage crash know only too well. With America's Congress now back from its summer break, Democrats are scrambling to do something, anything, about the mess.

Ideas are already piling up on the doormat like so many bailiff's letters: a rescue fund for borrowers, fines for unscrupulous lenders, federal regulation for state-supervised mortgage brokers and greater liability for buyers of mortgage-backed bonds. Wary of being outflanked, George Bush may extend mortgage insurance for some cash-strapped borrowers. Hearings starting this week are likely to lead to reams of further suggestions (see article). Some will be helpful, but most will probably do more harm than good.

Nobody doubts things are bad out there. More than 2m homeowners face higher interest charges thanks to resets on adjustable-rate mortgages. Perhaps a quarter of them could lose their homes. Mortgage delinquencies have shaken global credit markets because yield-hungry investors piled into illiquid paper backed by risky loans. Banks far and wide are showing enduring signs of distress (see article).

So it is easy to see why the call for more regulation is tempting. But it is also easy to descend into caricature, portraying borrowers as victims of villainous banks, brokers, rating agencies and hedge funds. By one estimate, half of all subprime borrowers lied about their income. Many chose to ignore the risk that house prices might fall. Heaping all the blame on Wall Street and its clients ignores the role of broader forces. Ultra-low interest rates and Asia's savings glut provided much of the liquidity that inflated the bubble.

Of course, nobody could suppose that today's regulation is fine just as it is. The failures in mortgages and the credit markets have revealed flaws. But two thoughts should stay the hands of over-eager reformers. Across the markets, self-correction is under way. Shares of the most egregious mortgage lenders have plunged and dozens have gone bust. Loan-underwriting standards are tighter. The riskiest subprime securities have almost no takers. These spasms are how the market cleans up its mistakes and learns not to repeat them. That sounds cold-hearted, but pain is a necessary part of this correction.

When politicians seek to deaden that pain and supplant those lessons with hasty fixes of their own, they almost always blunder. Look at the Sarbanes-Oxley act, pushed through Congress in the turbulent aftermath of Enron's collapse. Although it was not all bad, the law placed a straitjacket on companies and their auditors which was so tight that it has since had to be loosened. And consider the proposal today,

backed by Senator Charles Schumer, that a “suitability” standard be applied when a subprime loan is made. This may cut the risk of default, but it would also make it difficult for anyone with a blemish on his record to get a mortgage. Surely the legislators do not mean to heap still more pain on to the poor?

Slowly does it

Rather than rushing into a bail-out of housing, politicians should give the financial authorities time to lean on the market. The government has a lousy record of doling out money in crises (think of the mess it has made in New Orleans). State-led rescues are fraught with moral hazard: what investor wouldn't take on that “liar loan”, knowing that the taxpayer is ready to jump in and help when it all goes wrong? Money should go first, and perhaps only, to those who can show they were defrauded or deceived. Encouragingly, American banking regulators this week issued guidance that should coax lenders to restructure bad debts, in part by offering to take a sympathetic view of the accounting hits that follow. Time, too, is the essential ingredient in reforming the capital markets, especially the conduct of the rating agencies, the whipping boys of the crisis right now (see article).

Above all, if legislators want to avoid unintended consequences, they should prefer information to regulation. Brokers who are getting three times the normal commission rate for selling an exotic subprime product should have to disclose that. They should also be made to spell out the terms of interest-rate resets more clearly to borrowers. And other financial markets might be less prone to catching mortgage flu if the off-balance-sheet “conduits” that buy wads of asset-backed securities had to reveal more about their exposures.

Politicians say they want to help. What the financial system needs just now is the rarest of political virtues: self-restraint.

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America and Iran

The other struggle in the Gulf

Sep 6th 2007
From The Economist print edition

What the rest of the world can do to stop America and Iran from talking themselves into a fight

Reuters

Get article background

MOST Americans and much of the world is fixated on what General David Petraeus, the American ground commander in Iraq, intends to say when he reports to Congress next week (see article). But in the meantime American relations with Iran appear to be going from bad to worse.

The two countries are used to trading insults, but they have now become explosive. The more George Bush flounders in Iraq, the greater his temptation to blame Iran. On August 28th he called Iran the world's leading supporter of terrorism, claimed that its nuclear programme had put the Middle East "under the shadow of a nuclear holocaust" and authorised his commanders to confront Iran's "murderous activities". Mahmoud Ahmadinejad, Iran's president, sounds almost as if he is goading Mr Bush to attack. As a "master of tabulation and calculation", he told Iranian students this week, he had concluded that the country's enemies "dare not fight us".

Whatever the master of tabulation may think, there is however a danger that America will at some point dare to strike Iran, either as part of its battle against Iranian-supported Shia militias inside Iraq, or in order to cripple its nuclear programme. Here, too, Mr Ahmadinejad is no help. No sooner had the International Atomic Energy Agency (IAEA) reported at the end of August that Iran was going slow on uranium enrichment than he popped up to say the opposite. Iran, he said, had achieved its aim of running 3,000 uranium-enriching centrifuges and would add a new cascade every week.

If America and Iran are really intent on talking each other into a fight, the rest of the world can do little to prevent it. But there are ways to reduce the chances of a war by accident.

The most urgent is to persuade America that it does not have to deal with Iran's nuclear delinquency on its own. Since July 2006 the UN Security Council has passed three binding resolutions ordering Iran to stop enriching uranium until it shows that, in spite of a history of fibbing, its nuclear intentions are peaceful. To their credit, Russia and China supported these resolutions—including two imposing mild economic sanctions—despite both countries' commercial interests in Iran. But as Mr Ahmadinejad boasts, Iran has ignored the UN. If the Russians and Chinese are serious about preventing proliferation and shoring up the authority of the Security Council, they should now be more willing to help the Americans and Europeans produce a new resolution with sharper teeth.

The rest of the world should also inject more backbone into the IAEA. Mohamed ElBaradei, its director-general, is anxious to keep Iran in the Nuclear Non-Proliferation Treaty and inspectors in the country—

and to ward off an American military strike. These are honourable aims: an attack on Iran's nuclear sites might not succeed and could well start a war. But he is now falling into the trap of letting Iran earn a spurious seal of approval for activities his agency cannot properly monitor.

Iran and the IAEA have just announced a new understanding on future co-operation. It is a dreadful one. Though it lists several areas where inspectors have outstanding questions, it allows Iran to drip-feed information. The questions have to be in writing by the middle of this month. There is no real deadline for Iran's answers. Unless inspectors accept Iran's version of events and “close the file” on each successive subject, the Iranians won't provide the next set of answers, and so on. This leaves inspectors hard put to raise new questions when new information comes to hand. Iran has accredited a new list of inspectors—but only after barring those it found too intrusive.

Missing the point

The point of the recent succession of IAEA and UN resolutions, given Iran's history of lies and cover-ups, was to halt all enrichment and plutonium work. Yet the work is continuing. Mr ElBaradei has said it is pointless asking Iran to stop all enrichment work, since it has already mastered many of the skills. But others have these skills and do not use them. Mr ElBaradei's argument is that it is better to let Iran continue limited work under close supervision. The trouble is that his agency has no idea where else Iran is doing nuclear work, and so no idea where else these skills may be applied.

Mr Bush's approach to Iran has long been flawed. By appearing to threaten its regime after it had helped America to unseat the Taliban in Afghanistan, he may have confirmed it in its hostility and reinforced its desire for a bomb. More recently America and Iran have come to see each other as rivals for mastery of the post-Saddam Gulf. Their own interest, and the interests of the Middle East, would probably be better served if they explored the possibility of some sort of grand bargain. But that seems impossible if the Iranians think they have a clear run to a nuclear bomb. The region would be a good deal safer if the rest of the world did more to disabuse them.

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On Russia, Chinese goods, the silly season, gun laws, New Orleans

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The state of Russia

SIR – Your assertion that Russia wields influence in global affairs through "fear" and that it wants to return to the "zero-sum strategic thinking" of the cold war is fundamentally wrong ("Putin's people", August 25th). President Vladimir Putin does indeed wish to make sure that Russia's voice is heard on worldwide issues. However, this is not motivated by belligerence but by a sincere and legitimate concern about the direction of global decision-making.

In a speech to a security conference in Munich in February, President Putin set out his view that unilateralism and a disregard for the principles of international law only exacerbate the problems we face in the world. I think many in the West as well as in the East would agree. On issues such as the location of the United States' missile-defence shield in Europe and the future of Kosovo, Russia has been consistent and open about why we hold a different position to some nations in the West. Far from pursuing new divisions, Russia has held true to its belief that today's multipolar world requires respect for national interests and the pursuit of international solutions through discussion and negotiation.

Having a voice on the world stage should not be interpreted as a bid to dominate it. Perhaps it is cold-war thinking by others that is responsible for confusing the two.

Dmitry Peskov
First deputy press-secretary to the president
The Kremlin
Moscow

SIR – Upon my retirement in 1994 as deputy director of naval intelligence, and the American navy's remaining Sovietologist, the chief of naval operations asked me: "What will become of Russia?" I answered that I did not know exactly, but I was sure that in about ten years it would again be an authoritarian state.

Not a hard prediction, of course. Any scholar of Russia knows that Russian history revolves around long periods of authoritarian rule, broken only by brief periods of chaotic liberalisation before a new kind of authoritarian regime comes to power to exploit the nationalistic anti-Western xenophobia of the Russian people.

William Manthorpe
Rehoboth Beach, Delaware

SIR – The fact that Russian agents are reasserting themselves does have one positive aspect: all the bad guys (and girls) in films will once again be Russian. This will be much easier for the movie-going public, as well as casting agents, to understand. For the last few years film audiences have had to endure a hodgepodge of villainous countries without a uniform nationality. I, for one, look forward to watching James Bond battle mad Russian generals and evil henchmen in his next episode.

Brian Lang
Paris

Outsourced goods

SIR – You say that "it is only by keeping the lowest of low profiles" that contract manufacturers in China

can sell to several competitors ("China's toxic toymaker", August 18th). Yet both of the companies you cited as evidence are listed on stock exchanges outside mainland China, are the subject of detailed analyst scrutiny and openly advertise the identities of their clients and the products they make for them on their respective websites. I am inclined to wonder what they would have to do in your view to be described as maintaining a high profile.

Andrew Pawley
Director of corporate finance
Baker Tilly Hong Kong
Hong Kong

Gardeners' world

SIR – Your weekly round-up of articles appearing on Economist.com referred to the Norwegian media's equivalent of the silly season ("Oh, those lazy days of summer", August 25th). Trivial stories about giant vegetables may well supplant serious news items almost everywhere in August, but the Norwegian expression "cucumber stories" is rooted in the 18th-century British phrase: "tailor's holiday, when they leave to play and cucumbers are in season". This comes from tailors having to follow their clients to the countryside during the summer. The saying went out of fashion in Britain, but references to "cucumber time" were used in the Dutch press in the 19th century whenever business news slowed down.

Krijn Poppe
Zevenhuizen, the Netherlands

Bullet points

SIR – Your article on Mexico and drugs stated that "Mexican victims of drug violence are often killed with firearms smuggled in from the United States, where slack gun laws make automatic weapons easy to obtain" ("Plan Mexico", August 18th). Actually, automatic weapons (those that continue firing when the trigger is held down) are costly and difficult to obtain legally and illegally in the United States. A buyer must first pass a thorough background check and apply for a permit that costs nearly as much as an ordinary firearm. If you meant semi-automatic weapons, then the distinction should be clarified. Semi-automatics are easier to come by and are used for a variety of legitimate reasons, including hunting, but the rate of fire is slower. I hope this helps inform those who think the United States is akin to a Yemeni gun bazaar.

Josh Nims
Waco, Texas

Southern exposure

SIR – Certainly a bigger, better levee system would form part of New Orleans's defences against future storms ("The slow recovery", August 25th). However, much of the devastation wrought by Hurricane Katrina is due to the consequences of extensively modifying the wetlands upon which much of the city is built. Over 30km of coastal marsh has fallen to the Gulf of Mexico, mostly because of efforts to protect the city by building dams and levees. This has restrained the path of the Mississippi River and stymied its ability to naturally replenish sediment deposits.

The city's French founders knew better. They built only on high ground, mostly left the river to its own devices, and relied on the wetlands as a natural barrier to buffer and deplete any incoming hurricanes. Consequently, the core of the city built in 1718 has withstood the test of time. Locals (and the Army Corps of Engineers) now recognise the need for ecological as well as technological efforts; nevertheless, current plans focus mostly on extending the levee system. As the storm force of Katrina was less than category three when it hit land and storms in the region have the capacity to exceed category four, the likelihood that any levee system can successfully restrain nature is low.

Trenton Garner
London

SIR – For decades, Louisianans have elected politicians who promise something for nothing, including a former governor who once said that the only way he could fail to be re-elected was if he was caught in bed with a live boy or a dead girl. Oil built Texas and it could have built Louisiana too (and it has the

Mississippi River to boot). This Texan prefers not to lavish further largesse on Louisiana to compensate for the incompetents its voters insist on electing.

Toni Mack
Houston

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Strategy in Iraq

Waiting for the general (and a miracle)

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Reuters

America agonises over the pitfalls of staying in Iraq—and of leaving

Get article background

“AMERICA is between two fires. If it stays in Iraq, it will bleed to death; if it leaves, it will lose everything.” So said Ayman al-Zawahiri, Osama bin Laden's deputy, in 2004. If he is right, can America extract itself from this trap?

When America's senior commander in Iraq, General David Petraeus, and its ambassador in Baghdad, Ryan Crocker, brief Congress on the state of the war from September 10th onwards, they will find a capital divided. Much of Congress has decided that the war is lost and the troops should be brought home. Others believe that General Petraeus's “surge” is starting to work and that the politicians are in danger of losing a war the army is beginning to win.

More than four years on, “winning” can of course no longer mean what the architects of the 2003 invasion hoped for. President George Bush aimed not only to rid Iraq of its weapons of mass destruction (WMD) but also to liberate it from dictatorship and create a pro-Western democracy in the heart of the Arab world.

These high hopes have burned to ash. Saddam is dead and Iraqis voted freely in 2005 for their present government. But there were no WMD, the government is in chaos and the country is ravaged by violence. Under occupation Iraq has become both a recruiting-sergeant and a training ground for al-Qaeda. The civilian death toll is contested, but almost certainly exceeds 100,000. More than 3,700 American soldiers (and nearly 300 other coalition soldiers) have died. The serious debate is therefore not between victory or defeat but over how to mitigate the consequences of a disaster that has already taken place.

The violence in Iraq is not distributed evenly. In the north the Kurds have carved out an autonomous and largely peaceful enclave (see article) although there is potentially explosive conflict over the status of Kirkuk. In the four south-eastern provinces most violence has been either directed at the small British garrison in the port city of Basra, or is part of a turf fight between Shia militias such as the Badr brigade and the Mahdi army, both affiliated to Shia political blocks in parliament.

General Petraeus's surge of recent months has not aimed at these areas, but has concentrated on Baghdad and the intensely violent centre of the country. There, at least three overlapping wars are raging. One consists of attacks by the jihadists of al-Qaeda against the Americans, government forces and Shia civilians. Another is a sectarian war between Sunnis and Shias. Last, many Sunnis and Shias alike attack the Americans simply because they are seen as unwanted foreign occupiers. A poll in September 2006 found that 92% of Sunnis and 62% of Shias approved of such attacks.

The surge is not only a reinforcement but also, more important, a change of tactics. General Petraeus has deployed some 30,000 extra troops, bringing the grand total to about 160,000. More significant has been the new plan. Under General George Casey, General Petraeus's predecessor, the aim was to put Iraq's army in charge of security. Now the Americans have taken charge of protecting Iraq's civilians themselves. Instead of moving on after pacifying a neighbourhood, only for insurgents to return in their wake, they stay put.

Is the surge working? The answer is in the eye of the beholder. In an interview in the *Australian* on August 31st, General Petraeus said the new approach had made his soldiers “pursuers instead of defenders”, putting al-Qaeda “off-balance at the very least”. He said the number of sectarian killings in Baghdad had fallen by August to a quarter of its December level, and the number of weapons-cache finds had doubled. He called al-Qaeda “enemy number one”, because its mass murders had ignited sectarian violence. But Iran's “malign involvement” in arming and directing Shia militias was also a problem.

In a separate assessment of progress, the authors of America's National Intelligence Estimate (NIE) said in August that there had been “measurable but uneven” improvements in security. The report, approved by 16 intelligence agencies, concluded that a previously steep escalation in violence had been checked. If robust counter-insurgency operations continued, said the NIE, security would improve modestly in the next six to 12 months, but overall violence would remain high.

Two influential Washington think-tankers who visited Iraq in July—Michael O'Hanlon and Kenneth Pollack of the Brookings Institution—returned somewhat upbeat. They concluded that the surge had improved security and economic conditions in areas where General Petraeus had concentrated his forces. The Americans were working alongside Iraqi units that seemed more competent and less sectarian than before. But a commission headed by James Jones, a retired marine general, told Congress this week that the army's effectiveness was “limited”, the interior ministry “dysfunctional” and the police riddled with sectarianism.

A stroke of luck in Anbar

Even the reports of modest progress need to be read with the utmost caution. That is because the single best bit of news is a stroke of luck that probably had little to do with General Petraeus's surge and may not last. In some Sunni-dominated provinces, especially Anbar, local tribal leaders who previously supported al-Qaeda have been repelled by the high-handed brutality of the foreign jihadists and are now working with the Americans. Last year, al-Qaeda controlled wide areas of Anbar and American officers deemed the province lost. Now it is one of the safer parts of Iraq.

On September 3rd Mr Bush paid a surprise visit to an American base in Anbar, citing the province as proof that “success is possible”. Besides posing for photos, he met Iraq's prime minister, Nuri al-Maliki,

and local sheikhs. “The people of this province are seeing that standing up to the extremists is the path to a better life,” said Mr Bush. To the people of Anbar and Iraq, he promised that “America does not abandon our friends.” Addressing the audience back home, he said that “if the kind of success we are now seeing continues, it will be possible to maintain the same level of security with fewer American forces.”

The turnaround in Anbar is real. The question is how durable it is. Anthony Cordesman, of the Centre for Strategic and International Studies, returned from a visit in July convinced that the Sunnis who had been fighting American forces were now willing to work alongside the Shia-dominated government if offered money, status and a share of power. The authors of the NIE are less optimistic. They say Sunni resistance to al-Qaeda has not yet turned into support for the government or a willingness to work with the Shias.

Nor, understandably, does the government yet trust these potential new allies. In August seven American soldiers approaching the end of their tour in Iraq published an op-ed article in the *New York Times* that cast doubt on claims of progress. It was true that armed Sunni tribes had become American allies. “But the enduring question is where their loyalties would lie in our absence. The Iraqi government finds itself working at cross-purposes with us on this issue because it is justifiably fearful that Sunni militias will turn on it should the Americans leave.”

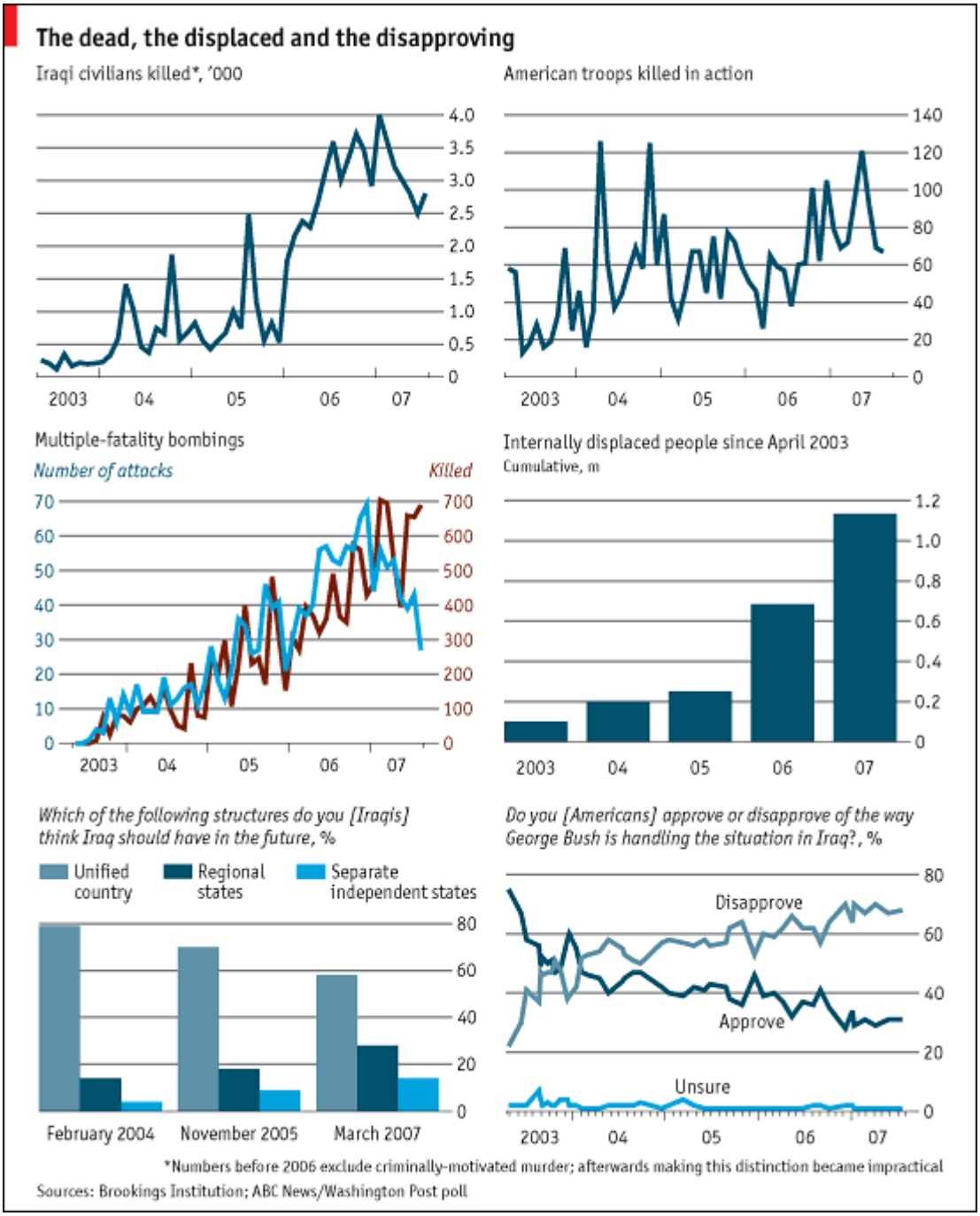
AFP

Her window on the future

Another reason for caution is that even if the Sunni change of heart keeps al-Qaeda off balance, jihadist attacks make up only one of those three Iraqi wars. The surge has yet to dampen down the civil war between Sunnis and Shias. Despite the drop General Petraeus points to in Baghdad's death toll, Sunnis are still being hounded out of mixed neighbourhoods—often by the national police and the interior ministry, which are riddled with Shia militias. The third war continues, too. Even as America tries to reduce sectarian violence, its soldiers still come under attack by Sunnis and Shias alike.

At the start of his new mission, General Petraeus made it clear that military means alone could not deliver success. Politics would have to play its part. But Iraq's sectarian parties have not agreed to share power and wealth in a way that might draw the conflict's poison. America's Congress has set out a series of “benchmarks” for Iraq's government, such as ensuring that the oil-poor Sunni provinces get a fair share of revenues and letting former Baathists back into government jobs. But Congress's Government Accountability Office reported this week that, of 18 benchmarks, Iraq had met only three in full and four in part. The NIE's assessment is that over the next six to 12 months Mr Maliki's government will become even more precarious as sectarian splits deepen.

In Anbar Mr Bush raised the prospect of withdrawing some troops, but only “based on a calm assessment by our military commanders on the conditions on the ground—not a nervous reaction by Washington politicians.” The calm General Petraeus later confirmed in a TV interview that some scaling back of the surge was probable. This, however, was always expected. America's ground forces are under unprecedented strain, and the longer the extra troops stay the more the generals worry that the all-volunteer army will “break”. Frontline units are already serving their third or fourth battle tours, and their deployments have been extended to 15 months with only a year at home to recuperate (British forces serve six-month tours, with two years at home). Continuing the surge beyond next spring would mean either extending tours beyond 15 months, or calling up more soldiers from the National Guard and reserves, or both.



The election at home

American politicians are hardly less divided than Iraq's. With only 14 months until the next election, polls matter. Mr Bush will never have to face the voters again, but the other players in Washington—members of Congress and candidates for the presidency—think of little else.

Most Democrats in Congress want to pull America out of Iraq as soon as is practical. Harry Reid, the Senate majority leader, spoke for many earlier this year when he said the war was lost. In theory, Congress can force a pull-out by denying Mr Bush the funds to continue fighting. But that is harder than it sounds. For obvious political reasons, the Democrats cannot simply cut off the funds that keep American soldiers properly supplied and equipped in the field. They can try to pass war-funding bills with strings attached—such as a demand for withdrawal by a certain date. But they need 60 votes (out of 100) in the Senate to get past a Republican filibuster, and they do not have them.

To woo wavering Republicans, some Democrats are elasticating their deadlines. Carl Levin, the chairman of the Senate Armed Services Committee, who sponsors a bill calling for a withdrawal to begin within 120 days, leaving a limited presence by April 30th 2008, says he might drop the end-date if that allows the bill to pass. Anti-war activists seethe at such compromises, but Democratic leaders in Congress retort that they have to be pragmatic.

For Democrats vying for the party's presidential nomination, the calculation is different. To win the nomination, a candidate must appeal to the kind of hard-core Democrats who vote in primaries, who tend to be furiously anti-war. Some pander without reservation. Bill Richardson demands that Congress “de-authorise” the war. John Edwards dismissed Mr Bush's trip to Anbar this week as a “photo op” and downplayed any progress there by noting that Anbar is “a homogeneous area that lacks the ethnic conflict that's plaguing the rest of the country.” He demanded that Congress confront the president over Iraq: “No timeline, no funding. No excuses.”

Others are more circumspect. Hillary Clinton, the favourite to win the Democratic nomination, said last month that the new tactics seemed to be working in some provinces, such as Anbar. She favours “beginning” to bring the troops home, but is careful not to make detailed promises that might tie her hands. This may be because she expects to win, and to have to oversee America's endgame in Iraq.

Republican presidential candidates tend to support Mr Bush and the surge, but among the big-hitters only John McCain says much about it on the campaign trail. Mr McCain called for extra troops long before they were sent, so Mr Bush's conversion to his point of view counts as a triumph of sorts for the senator from Arizona. But his loud association with an unpopular war makes him all but unelectable. His main rivals, Rudy Giuliani, Mitt Romney and Fred Thompson, emphasise how tough they will be on terrorists but say as little as possible about Iraq.

Run and hope for the best?

What if America cut its losses and left altogether now? (“Now” actually means over the many months, or perhaps a year, it would take to remove all its forces, contractors and their paraphernalia.) A few advocates of early withdrawal claim that by announcing its departure America would galvanise Iraqi politicians into making the painful but necessary power-sharing compromises they have so far been able to avoid. Barry Posen, director of security studies at the Massachusetts Institute of Technology, was arguing more than a year ago that the occupation was “infantilising” Iraq's politics. But most advocates of leaving acknowledge that conditions in Iraq would probably get worse.

In December 2006 the Iraq Study Group chaired by James Baker and Lee Hamilton suggested that most of America's soldiers could leave by the first quarter of 2008, even though a “precipitate” withdrawal could lead to more violence, a power vacuum, regional instability and the intervention of neighbours. Many independent analysts have since come to agree. In February Steven Simon, a former member of America's National Security Council, produced a report for the Council on Foreign Relations, arguing that since America would not be able to stop Iraq's civil wars by staying on, it should announce a plan for a “military disengagement” over a period of 12 to 18 months.

Mr Simon does not expect the violence to become less intense once America begins to leave, but thinks a Sunni-Shia military stalemate would be a likelier outcome than the wholesale expulsion or genocide of the Sunnis. That, he says, is because the Shias show little interest in conquering the Sunni areas, and because neither side has the aircraft, heavy artillery or armour to reduce cities to rubble and so inflict truly massive casualties. But most truly awful recent wars (Congo, Rwanda) were fought mainly with small arms. Toby Dodge, a well-respected Iraq-watcher at London's International Institute for Strategic Studies, has argued that the growing conventional wisdom—“run away and hope for the best”—would lead to a lethal free-for-all and a collapse into warlordism.

Needless to say, proponents of early withdrawal do not characterise their approach as just hoping for the best. They think that by taking care over the timing and manner of its departure America may still be able to shape events and diminish the chances of leaving mayhem behind. In Mr Simon's plan, for example, America would continue to give Iraq aid and training and keep troops nearby so they could intervene if a genocide really did unfold. The Centre for American Progress proposes a “phased consolidation”: American troops would withdraw from the most stable bits of Iraq first, to avoid leaving “a sudden and immediate power vacuum”.

Such plans may include too much wishful thinking. In June Senator Richard Lugar, a senior Republican who believes the war has failed, said America ought to leave in a way that prevented Iraq becoming a haven for terrorists, safeguarded regional stability, prevented Iranian domination of the area and limited the damage to America's reputation. That is a lot to ask from a withdrawing army. In Basra, the British forces who withdrew this week from the palace to the airport found themselves incapable of shaping events in the city once their numbers dwindled below the level at which they could impose their will on the streets (see article).

If the main affliction of Iraq is a sectarian civil war, might partition be the solution? In his June speech Mr Lugar said that “few Iraqis have demonstrated that they want to be Iraqis”. With the half-exception of the Kurds, however, Iraq does not lend itself to neat division. More than half of its population lives in four mixed cities, Baghdad, Basra, Mosul and Kirkuk. It is true that if ethnic cleansing continues for long enough (a large proportion of its minority populations has already been displaced), Iraq may end up breaking into Sunni, Shia and Kurdish mini-states. But to produce such an outcome by consent would require Iraq's mistrustful politicians to make heroic decisions on where to draw borders and how to share the oil.

Mr Lugar's assessment of what Iraqis want may anyway be wrong. A series of opinion surveys conducted by Mansoor Moaddel, who is affiliated with Eastern Michigan University and the University of Michigan Institute for Social Research, has found that Iraqi Arabs, if not the Kurds, have a strong sense of national identity. Though sectarian conflict is increasing, he says, “It would be a mistake to think that this bloodlust represents widespread sentiment among Iraqis as a whole. While neither American nor Iraqi security officials have yet found a way to tame the militias, the Iraqi public is increasingly drawn toward a vision of a democratic, non-sectarian government for the country.”

Strategic ju-jitsu

Almost all advocates of early withdrawal stress the desirability of co-operation with Iraq's neighbours. The Baker-Hamilton report said that America needed to reach out to Iran and Syria, America's adversaries. Since May American diplomats have twice met their Iranian counterparts to discuss security in Iraq, but these meetings have so far achieved little. The Americans say that Iran is helping its Shia allies in Iraq to attack American soldiers. The Iranians deny this but make no secret of wanting to humble the superpower in Iraq, if only to deter it from attacking them too.

It has become a commonplace to point out that America's invasion of Iraq has strengthened Iran. With Saddam dead and a friendly Shia government in Baghdad, the mullahs in Tehran are showing a new self-confidence. Ayatollah Ali Khamenei, Iran's supreme leader, says that America is “stuck in a whirlpool” and sinking deeper. Iran's president, Mahmoud Ahmadinejad, adds that Iran is ready to fill the vacuum.

Even after leaving Iraq America would have strategic interests in the energy-rich Middle East. To reassure allies, Mr Bush has beefed up American naval forces in the Persian Gulf and promised to provide nervous Sunni Arab regimes (and Israel) with dollops of advanced weaponry over the coming decade. On top of this the Americans are trying to block Iran's fishy-looking nuclear programme by imposing economic sanctions, both directly and through the UN Security Council.

AP

It's been nice knowing you—sort of

There is another school of thought. Some analysts see Iran as a country that is as keen as America to avoid chaos in Iraq and so can be enlisted as a helper. William Lind of the Free Congress Foundation argues that America should get out and let a pro-Iranian strongman such as Muqtada al-Sadr re-establish strong central authority. Such an Iraq would not be a pro-American state but it would at least be a state. Others advocate an American rapprochement with Iran similar to the opening Richard Nixon and Henry Kissinger made to China as cover for leaving Vietnam.

In any such attempt at strategic ju-jitsu, however, America's bargaining position will in the end depend

on a combination of military strength and political will. Mr Bush's message from Anbar this week seemed to be that America could escape from its Iraqi trap only by making itself look strong again before getting out. General Petraeus has to persuade Congress that such a plan is still possible.

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Subprime mortgages

Of the wretched and the reckless

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Reuters

With elections looming, politicians pile in to the mortgage mess

THE subprime mortgage fears that have plagued the world's capital markets for weeks now are not just a global economic problem: they are a dangerous domestic political issue as well. Over 2m Americans—many of them poor and black—face sharply higher mortgage payments over the next year or so, as the low introductory rates on their loans reset. A lot of these people could lose their homes. If the economy slows and overall house prices fall by the 15% or more that some Wall Street seers are now predicting, the problem could spread far beyond the weakest borrowers.

Default rates have already risen sharply. No one knows how bad things will get. The Bush administration predicts that around three-quarters of subprime borrowers will be able to work out their problems. But it is clear that there is worse to come—and next year's presidential and congressional elections are looming.

Small wonder that Democratic politicians have long demanded action. There is pressure to help the victims, punish the perceived villains (particularly unscrupulous mortgage providers), unfreeze mortgage markets; and stiffen regulations to make sure the mess is not repeated. Some of the loudest shouting has come from the presidential candidates. Hillary Clinton, for instance, wants a $1 billion fund to help troubled borrowers avoid losing their homes, as well as new federal rules supervising mortgage-brokers. (Over half the recent subprime mortgages were sold by state-licensed providers who are not subject to federal oversight.) Barack Obama, her main rival, wants to fine fraudulent mortgage providers and use the money to bail out distressed borrowers.

Congressmen are brimming with proposals too. Some want to use existing federal housing organisations to sort out the mess. There are calls for Fannie Mae and Freddie Mac to expand their portfolios: calls that the White House has, thus far, sensibly resisted. Many want to extend the reach of federal mortgage supervision and clamp down on “predatory” lending. Barney Frank, a congressman from Massachusetts, wants to hold investors in mortgage-backed securities partially liable for any problem in loans they own.

To parry this congressional pressure and squash accusations that he was oblivious to the mortgage mess, George Bush unveiled his own ideas on August 31st. He made clear that no big federal bail-outs were on offer. But he wanted to help those who needed a little “flexibility”. Top of the list was a proposal to expand the use of the Federal Housing Administration (FHA), a little-known government body created during the Depression, which insures mortgages. By altering the rules to allow the FHA to insure the refinanced mortgages of people who are behind in their payments but basically creditworthy, the Bush

administration hopes to help some 80,000 subprime borrowers refinance their loans. Mr Bush prodded Congress to pass long-languishing legislation to revamp the FHA so that it could, once again, play a bigger role in subprime markets. And the White House proposed temporary tax changes, so that cancelled mortgage debts were not counted as taxable income.

With so many proposals swirling around Washington, it is hard to know where the politics of the mortgage mess will end up. For now, the appetite for big bail-outs remains limited. In a recent Fox News poll, 70% of respondents were against using taxpayer dollars to help out troubled homeowners, while 80% were against a bail-out for banks and mortgage companies. Outside the subprime sectors, recent statistics suggest that a large chunk of the rising defaults come from “non-resident homeowners”, the speculators and house-flippers for whom there is the least public sympathy. Those politicians who do want federal cash to help troubled borrowers are suggesting relatively small sums, mainly to help community organisations who advise and assist the indebted.

In the short term, the most likely action will be regulatory. And there the politicians risk making matters worse. Investors' unwillingness to hold subprime debt has already forced a dramatic tightening of lending standards. The regulators, admittedly asleep for too long, are now working hard. In July, the Federal Reserve and the Office of Thrift Supervision announced a pilot plan in which they, together with a consortium of state-based agencies, would supervise mortgage lenders. That approach could bring state-chartered providers into the federal orbit without any formal changes in the law.

Similarly, existing laws offer plenty of room to crack down on nefarious lenders. For instance, the Home Ownership and Equity Protection Act (HOEPA) allows the Fed to set standards for all lenders on predatory lending. An institution that violates these guidelines not only risks regulators' ire, but can also be sued. The Fed has promised to propose new HOEPA guidelines by the end of the year.

For those in the political amphitheatre, tinkering with the existing rules sounds too much like a stage whisper. Hence the demands for sweeping change. That would be nothing new. From the creation of institutions like the FHA and Fannie Mae as a result of the Depression to the savings and loan crisis of the late 1980s, politicians have helped shape America's system of housing finance. At issue, as the subprime debacle unfolds, is whether their latest efforts will be for good or ill.

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Homeland security

Six years on

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From The Economist print edition

How safe is America now?

AMERICANS remain attractive targets. On September 5th the German authorities said they had foiled a plot to bomb American military facilities there (see article). According to the latest National Intelligence Estimate, a rejuvenated al-Qaeda operating in tribal areas of Pakistan is determined to launch a catastrophic attack on American soil using chemical, biological or nuclear weapons. It has become a cliché in Washington to point out that the question is not whether terrorists, al-Qaeda or other, will strike the United States again, but when and how.

Yet no foreign terrorist has managed to strike the country since September 11th, 2001. Republican candidates have run on—and won on—that fact, which continues to buoy an otherwise ever more unpopular George Bush. It's an impressive record, but is it the Republicans' to claim?

The Bush administration has taken care of many of the basics since 2001. Cockpit doors have been reinforced, more air marshals patrol the skies, and better records are kept on those entering the country. Co-operation between America and other countries on anti-terror efforts has also increased, which contributed to the arrest in London last year of a band of terrorists plotting to bring down aircraft over the Atlantic. More impressive achievements, some experts say, are in the pipeline.

The most obvious change since the 2001 attacks has been the added rigmarole at American airports. Passengers must now remove their shoes for x-ray. The amount and type of liquid allowed through security checkpoints is strictly regulated. Non-Americans entering the country are photographed and fingerprinted.

Critics have long complained, however, that federal anti-terrorism programmes have followed threats, not anticipated them. Footwear did not receive such scrutiny before would-be bomber Richard Reid tried to light the explosives packed into his shoes on a transatlantic flight. The Transportation Security Administration, which governs airport security, did not produce its liquids policy until British investigators disrupted last year's plot to blow up America-bound flights by combining household chemicals.

The authorities also seem to have trouble implementing policies already in place. Government reports suggest that airline security procedures are remarkably ineffective, routinely failing to catch explosive materials carried by undercover agents. Low morale and high turnover plague the Department of Homeland Security, a 180,000-person behemoth set up after the 2001 attacks. American border officials check who is entering the country, but do not reliably record who leaves (or, more important, who doesn't).

A lot of money has also been wasted in the past six years. Congress, for example, has a programme that guarantees homeland-security grants to each state government regardless of risk. Calculations of risk have been odd in the past, too, as when Washington, DC, was classified as at low-risk of terrorist attack, or when New York City had no national monuments or icons listed on a Department of Homeland Security registry. Indiana boasted the most potential terror targets of any state. The formulas have since been rejigged, but critics say they still send too much money to areas of the country that do not really need it.

American efforts aside, al-Qaeda's desire to cause spectacular damage to internationally prominent monuments, a tricky goal, goes some way to explaining America's success at avoiding attack. It took Osama bin Laden nearly a decade to bring down the twin towers after his organisation first tried in 1993. The vastness of the Atlantic and the Pacific also continue to provide some measure of safety. Brian Jenkins, a senior adviser at RAND, a think-tank, offers two more possibilities: the Muslim-American community seems to be inhospitable to violent extremism; and jihadists might not want to enrage a public that is tiring of America's commitments in Iraq and Afghanistan.

It is clear that American policymakers have not rendered the United States invulnerable to terrorist attack, particularly small-scale operations. There is little to stop a few extremists with machine guns from shooting up a mall, hurting American commerce briefly. Stopping more ambitious attacks, meanwhile, is still probably at least as much a matter of luck as of skill. So far, America has been blessed with a bit of both.

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New York

Where the towers once stood

Sep 6th 2007 | NEW YORK
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Ground Zero is still controversial

AP

The hole in New York's heart

A LOVELY morning in New York still brings to mind the cloudless sky on the day aeroplanes crashed into the World Trade Centre. Six years on, a low-flying plane or a speeding fire truck can make the heart pound. But most New Yorkers had moved forward until a fire last month at Ground Zero's former Deutsche Bank building took the lives of two firefighters and reminded everyone of that awful day in 2001 and the indecision that followed.

The Deutsche Bank building was irreparably damaged when the towers fell. It should have been demolished years ago, but work has been delayed by court battles, asbestos and toxic dust removal, work stoppages and a renewed search for body parts. Only 15 of its 41 floors have been dismantled.

In contrast, Building 7 of the World Trade Centre complex was quickly rebuilt and reopened last year. Moody's, a credit-rating agency, recently moved into the office tower. Other good news: JPMorgan and Goldman Sachs both plan to build new headquarters near Ground Zero. Commercial vacancy rates continue to drop and are almost at pre-September 2001 levels. Nearly 18,000 residents have moved to Lower Manhattan since 2001, a 30% increase. The area is almost back to its cocky self.

With the construction of the Freedom Tower and the memorial finally under way, next week's anniversary services will take place at a nearby plaza, not the site itself. Next year the victims' families will not have access to Ground Zero's pit. This has made many bristle, especially the families of the 1,100 victims who have never been identified. Many consider the site sacred ground, in part because human fragments are still being discovered there. Others are seething over Rudy Giuliani's plan to attend, fearing that the former mayor, now running for president on the back of his leadership that day, will politicise the event.

Some are not convinced that the proposed memorial—underground, with waterfalls and a museum—will be a success. Cal Snyder, a historian, points out that the 250 “vernacular memorials”, erected in parks, water fronts, fire-stations and schools all over the five boroughs, work well because of their simplicity. Amid all the controversy and delays associated with Ground Zero projects, the only widely applauded element has been the shining of two blue beams of light into the night sky every September 11th where the twin towers once stood.

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Environmental protection

Muddy waters

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The murky rules for keeping the Great Lakes clean

IT IS not often that Whiting, Indiana, makes the national news. But Indiana's plan to let BP, a British energy company, expand an oil refinery there, possibly increasing pollution in Lake Michigan, has raised hackles not just in neighbouring Illinois but all the way to Capitol Hill. Barack Obama, a senator from Illinois, wrote a stern letter. Illinois's governor and Chicago's mayor threatened to sue.

Faced with such protests (and a petition signed by more than 100,000 people), on August 23rd BP agreed to limit discharges to the lake. But the scuffle goes on. Not only does BP now face scrutiny over its atmospheric emissions, but Indiana's permit allowing the company to increase pollution to the lake also remains valid. In October a judge will consider a lawsuit that seeks to revoke it.

The brawl has made two things clear. First, there is widespread hostility to polluting any of the five Great Lakes, which supply drinking water to some 30m Americans, not to mention many Canadians, each year. Second, despite the common desire to keep the lakes clean, there is confusion over who is in charge of doing so. Of the many rules that limit pollution to the lakes, the most important is the Clean Water Act. But implementing it remains as tricky as ever.

The act, which was passed in 1972, aims “to restore and maintain the chemical, physical and biological integrity of the nation's waters.” It does this, in part, by regulating so-called “point source” polluters, such as factories or refineries. Each state creates its own standards for water quality—these must be at least as stringent as those set by the Environmental Protection Agency (EPA)—and issues permits to regulate discharges from such sources.

Of course, some states are stricter than others. Indiana gave a permit to BP that allows it to increase emissions of ammonia and suspended solids (critics call it sludge) by 54% and 35% respectively. Lawyers at the Environmental Law and Policy Centre protest that this defies a basic provision of the Clean Water Act, that states cannot let pollution rise. But there is a loophole: a state may in some cases allow a facility to increase pollution, though not past federal limits, if it is able to show that more filth is necessary to produce an important economic or social benefit.

Though the EPA does have the power to intervene in such cases, states usually end up doing as they please, according to Cameron Davis, president of the Alliance for the Great Lakes. The EPA did not reject BP's permit, so a neighbourhood fight broke out. Indiana's scheme was bound to anger the other states around the lake—Illinois, Michigan and Wisconsin—which would have dirtier water without the benefit of new jobs.

The muddle over how to limit water pollution from a refinery, which at least is easy to identify, does not bode well. How to regulate “non-point source” pollution, such as pesticides from agricultural run-off, is a continuing, and harder, debate. Another question is who should oversee construction on wetlands: a Supreme Court ruling in 2006 only increased confusion over the federal government's role. It is not just environmentalists who want to clear this up. “Regulatory certainty is very important when companies are making multi-billion dollar investments,” explains Scott Dean, a spokesman for BP.

Politicians, meanwhile, are beginning to address the problem. In the 1990s federal and state regulators agreed to make state limits more uniform for the Great Lakes' most toxic pollutants; Congress is now considering a bill to promote further collaboration. Rahm Emanuel, an Illinois representative and a co-sponsor of the bill, also hopes to hold a hearing by October to address confusion over the EPA's role under the Clean Water Act. But, as Peter Swenson of the EPA admits, “There is a disconnect between some people's expectation and the regulatory landscape.” That, it seems, is rather an understatement.

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Endangered species

The overcrowded ark

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The Endangered Species Act has become unwieldy. Time for a change

AP

Guilty fish

THE delta smelt lives in brackish water, eats zooplankton and usually grows no longer than three inches (7.6 cm). It is not the sort of creature that environmentalists put on posters. But the little fish may prove as potent a symbol of America's odd approach to conservation as the California condor or the grey wolf. On August 31st a federal judge ruled that giant pumps supplying water to much of southern California were killing the smelt, which is protected under the Endangered Species Act. Those pumps will now have to shut down for much of the year, reducing water output by up to a third.

When the Endangered Species Act was signed in 1973, it was expected to protect charismatic fauna such as the bald eagle and Yellowstone's grizzly bears. These days it covers such obscure life-forms as the Stock Island tree snail, the Banbury Springs limpet and the triple-ribbed milk-vetch, along with 1,348 other animals and plants. In the absence of other powerful laws, it has become the chief weapon of environmentalists—and the bane of landowners and property-rights activists.

The act's most powerful tool is the power to designate “critical habitats”, in which development, farming and mining are greatly restricted. The designation of much of Oregon as a critical habitat for the northern spotted owl in 1992 led to restrictions on logging and the loss of some 10,000 jobs. Las Vegas's explosive growth has been slowed by the desert tortoise and the discovery of two rare plants. Last month Senator James Inhofe of Oklahoma blamed the American burying beetle for hampering energy production in his state.

Some say the law isn't very useful. Damien Schiff of the Pacific Legal Foundation notes that few species come off the threatened or endangered list—just 47 since 1973, the majority because they became extinct or were found thriving elsewhere. Some celebrated recoveries, like that of the bald eagle, occurred largely thanks to the banning of the insecticide DDT, rather than to the act. Worse, the law may actually speed up extinctions. Farmers have an incentive to destroy protected species before the biologists find them—a practice known as “shoot, shovel and shut up”.

To the act's supporters, all this suggests that the law needs only to be enforced more strongly. Kieran Suckling of the Centre for Biological Diversity accuses the government of dragging its feet over listing species. A bigger problem, says Dale Goble of the University of Idaho, is that the law does nothing to help species before they become endangered. The Fish and Wildlife Service now spends so much time dealing with lawsuits that it often fails to consider species for protection until it is almost too late. At that point, the strictest measures are put in place.

For all its problems, few talk openly about scrapping the act. It enjoys a totemic status akin to the Civil Rights Act; to challenge it is political suicide. In 2005 Richard Pombo, a seven-term California congressman, tried to amend the law. Attacked in his Republican primary and the general election for his environmental record as well as his ties to Jack Abramoff, a disgraced lobbyist, Mr Pombo was booted out of office last year—the only congressman to lose his seat in California.

If it is not in serious danger of being abolished, the law is gradually being tamed. The Bush administration has tried to encourage, rather than force, landowners to preserve rare species and has created a kind of habitat-trading scheme. Knowing that they will suffer if species decline to the point where they must be listed as threatened, mining companies are learning to tread softly around creatures such as the sage grouse. Such compromises infuriate environmental purists. But, imperfect as they are, they represent the best hope for balancing the need to protect nature with the need to keep the water running.

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Arabic in schools

Words of the prophet

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Arabic-language teaching arrives in New York

“MARCH on,” wrote the Lebanese-American philosopher and poet Khalil Gibran, “and fear not the thorns, or the sharp stones on life's path.” Thus did the pupils, staff and administrators of the institution named after him march through a storm of controversy and into the doors of the Khalil Gibran International Academy this week.

The school, which will teach Arabic as well as Middle Eastern history and culture and will inevitably discuss Islam, has been under scrutiny since the New York Department of Education announced its creation last February. Conservative commentators have muttered that it will be a training ground for terrorists. Many portrayed Debbie Almontaser, the school's Yemeni-American principal, as an apologist for suicide-bombers after she insufficiently denounced an Arab women's group that produces “Intifada NYC” T-shirts.

New Yorkers have offered a sympathetic ear to the doomsayers. The school was relocated in May as a result of opposition from the parents of students at the school that was meant, at first, to share its Brooklyn building with the Academy. Joel Klein, who is in charge of New York's schools, considered delaying its opening by a year. And Ms Almontaser resigned last month after receiving only tepid support (“she's certainly not a terrorist,” said Michael Bloomberg, the mayor). Mr Klein hastily named an interim principal—a non-Arabic-speaking Jewish woman—and New York's first Arab-language public school opened as scheduled on September 4th.

Beefy security guards funnelled the pupils through a gauntlet of media and several dozen silent supporters. Opponents protested at City Hall, but at the academy the mood was buoyant. “This is our country, too,” said a beaming Najat Handou, a Moroccan-born Brooklynite, after dropping her son off for class.

New York operates nearly 70 dual-language public schools. They are gaining popularity across the country, particularly in the heavily-Hispanic South and south-west. But this school—like a Hebrew-language public school that is causing controversy in Florida—strikes at the American conviction that paying taxes to support religious teachings violates the separation of church and state. At the Gibran Academy, bits of Islam are probably unavoidable. But concerns that it will be an Islamist Trojan horse are probably unwarranted. The education department has repeatedly stated that if the school becomes a vehicle for religious indoctrination it will be closed. And it seems unlikely that much Islamic extremism will be taught at a school that is, after all, named after a Christian.

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Lexington

The state of the race

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Illustration by David Simonds

The presidential race is speeding up. But the outlook remains unchanged

THE era when Labour Day marked the official kick-off of the primary season has long gone. The candidates have been hard at it for months. The public has already endured 12 televised debates, and the press has long devoted more attention to the presidential campaign than to anything other than Iraq. But Labour Day has its uses nonetheless. It provides an excuse for the candidates to redouble their efforts. This week they love-bombed Iowa and New Hampshire with renewed intensity, with Bill Richardson even declaring that Iowa's first-in-the-nation position was ordained by the Lord. For the press, it provides an excuse for meditating on the state of the race. So here goes.

The most striking thing about the race is how stable it is. For all the blizzard of daily events, the "fundamentals" have stayed fixed for a year. The Democrats, and especially the Clintonians, are in the ascendant—and the Republicans are flailing about like people trapped in quicksand.

Almost every day brings more gloom for them. In the past week or so alone John Warner, a five-term Republican senator, announced that he will not run for re-election (giving the Democrats a chance to pick up a seat in Virginia) and Larry Craig, who once called Bill Clinton a "nasty, bad, naughty boy", may have to resign his Idaho Senate seat in the wake of a bizarre incident in an airport lavatory. All but one of the dozen or so elected officials who are currently in legal trouble are Republicans.

All this is obviously good news for the Democratic candidates. It also raises the possibility that a Democratic president could face a Democratic Congress. Some Democrats, delirious over the Craig affair, are even talking about winning a filibuster-proof majority (60 seats out of 100) in the Senate for the first time since Jimmy Carter's presidency.

The Democratic pecking order is also remarkably stable. Hillary Clinton has enjoyed a double-digit lead over her nearest rival for months. The latest Pew poll suggests that, if anything, that lead is widening, with 40% of Democrats and Democrat-leaners favouring Mrs Clinton compared with 21% who favour Barack Obama. But most Democrats would be thrilled to have either of the front-runners as their nominee.

The Republican pecking order, by contrast, is up in the air, with Republican stalwarts still seeking a champion and the Republican candidates flummoxed by "the Bush problem": reluctant to break with the president's policies but conscious that those policies are deeply unpopular in the country. John McCain

flamed out early, primarily because of his support for immigration reform. The Republicans now have not one front-runner but two. Mitt Romney leads the field in both Iowa and New Hampshire—but is finding it hard to project his appeal nationally. Rudy Giuliani leads in every national poll—but confronts the problem that it is almost impossible to win nationally if you flounder in the early primaries.

Two other candidates have a chance of shaking up the Republican field. The best known is Fred Thompson, who announced his candidacy on September 5th. The most interesting is Mike Huckabee, a former governor of Arkansas and legendary fat boy made slim. Mr Huckabee has become the Bill Clinton of this campaign season (he even hails from Mr Clinton's home town of Hope). He is proving to be a talented flesh-presser and off-the-cuff speaker. He even extends a wide stride over America's cultural divide, as a Baptist minister (and Darwin-basher) who also plays a mean bass guitar. Still, it seems unlikely that either Mr Thompson or Mr Huckabee possesses the necessary heft to pull their party out of the slough of despond.

It is always prudent to enter the usual “a week is a long time in politics” caveats. Another terrorist incident could revive the Republicans' fortunes. A Bill-related sex scandal could deflate the Clinton dirigible. Fifty-two per cent of Americans have already formed negative impressions of the campaign; 59% have not bothered to watch a single debate. Moreover, political campaigns are more vulnerable than ever to gaffes thanks to YouTube and the blogosphere.

Sixty-one weeks to go

Mrs Clinton may be making a mistake in tying herself so closely to her husband (the two were hip-and-thigh in Iowa and New Hampshire this week, before separating to go on a talk-show blitz). Mr Obama is a powerful campaigner and fund-raiser. And John Edwards has a lot of support in the early primary states and with the unions. John Kerry was languishing at 9% in a Gallup poll of Democratic voters in January 2004. By early February he had leapt to 52%.

But so far nothing has even begun to disturb the dynamic of the race, with the Democrats cruising confidently ahead of the Republicans and Mrs Clinton cruising confidently ahead of her Democratic rivals. Today's Republican Party bears a striking resemblance to Britain's Conservatives in the dying days of John Major's administration. The party's hard right did its best to redefine conservatism as the philosophy of mean-spirited lunatics. Every week or so brought news of a Tory MP caught with his trousers down or his hand in the till. (It later turned out that Mr Major had once conducted an adulterous affair with a fellow MP, Edwina Currie.)

Today's Democratic Party cannot claim anything like New Labour's mixture of fresh faces and shiny new ideas. Mr Obama brings the fresh face but some worryingly half-baked thinking: he recently produced a perfect formula for deepening the mortgage crisis by fining over-stretched mortgage companies. Mrs Clinton is singularly bereft of freshness, intellectual or otherwise. But given the Republican Party's travails, the Democratic Party's failure to reinvent itself is unlikely to make much difference on election day. The day after could be a different matter.

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Colombia and Venezuela

Hostage, but to whom?

Sep 6th 2007 | BOGOTÁ AND CARACAS
From The Economist print edition

AFP

In inviting Hugo Chávez (left) to negotiate with the FARC guerrillas, Álvaro Uribe (right) has taken a big risk

Get article background

IN HIS first term as Colombia's president, Álvaro Uribe set his face against any negotiation with the country's left-wing FARC guerrillas, arguing that they had to be militarily weakened before they might talk seriously about peace. In particular, he rejected the FARC's calls for a "humanitarian accord", its Orwellian term for swapping the better-known of its kidnapped hostages for dozens of jailed mid-level guerrillas. But in a startling about-face, Mr Uribe has invited Hugo Chávez, the leftist president of neighbouring Venezuela, to try and broker a deal.

That is a sign of how much pressure Mr Uribe, whose father was murdered by the FARC in a botched kidnap, now faces on the issue. The FARC has held a number of hostages for up to ten years because it considers them *canjeable* (swappable). The 45 people still in that category include Ingrid Betancourt, a politician of dual Franco-Colombian nationality; several other politicians; army and police officers; and three Americans working under contract to the State Department.

Colombian public opinion has veered towards favouring a swap after the killing in June, in circumstances yet to be clarified, of 11 regional legislators held by the FARC for the past five years. A schoolteacher whose son is a hostage drew widespread public support by marching 1,000km (620 miles) to Bogotá to call for a swap. France's president, Nicolas Sarkozy, has made obtaining the release of Ms Betancourt a priority. At his behest, Mr Uribe in June freed Rodrigo Granda, the highest-ranking prisoner, who promptly decamped to Cuba.

Hitherto, the main sticking point has been the FARC's demand for the government to withdraw troops from an area where negotiations would take place—something most Colombians oppose. It is to break this deadlock that Mr Uribe turned to Mr Chávez. The two men are ideological opposites but have developed a relationship of wary mutual respect. Mr Chávez leapt with gusto at the chance to be seen as a regional powerbroker. In the past two weeks he has met Mr Uribe and spoken to the families of both the hostages and the guerrilla prisoners.

If anyone can persuade the FARC to deal, it is indeed Mr Chávez. Its leaders have already agreed to meet him in Caracas. It is not long ago that Colombian officials were publicly accusing him of supporting the guerrillas and turning a blind eye to their alleged bases across the border in Venezuela. Raúl Reyes, a FARC leader, gave indirect support to such claims in an interview with *La Jornada*, a Mexican newspaper, published this week, in which he said he had met Mr Chávez.

Mr Uribe's defenders have long argued that a hostage swap will merely encourage further kidnapping. The FARC was behind nearly a third of 23,144 kidnappings in Colombia between 1996 and 2006,

according to País Libre, a group that helps the families of kidnap victims. But that objection has been undermined by the president's own success in weakening the FARC. In 1998 the guerrillas kidnapped 1,016 people; by last year that figure had fallen to 122.

The bigger risk is that by bringing in Mr Chávez, Mr Uribe has granted the FARC an avenue to international legitimacy. If that were the prelude to serious peace talks, so much the better. But Mr Chávez, an elected president but one who has ridden roughshod over his country's institutions, is hardly best placed to persuade the FARC to accept the rules of democracy.

For Mr Chávez, the unexpected role of peacemaker is a welcome break from a string of foreign-policy setbacks. His decision not to renew the broadcasting licence of an opposition television station, his plans to change the constitution to allow himself to be re-elected indefinitely, large-scale purchases of Russian arms and resistance in Brazil to his attempts to join the Mercosur trade block have all diminished his standing in the region.

His new role as mediator may also amplify his hitherto limited influence in Colombia—the main obstacle to his plans to turn his “Bolivarian revolution” into a pan-Andean project. After meeting Mr Uribe he released a group of Colombian paramilitaries arrested in 2004 on mysterious charges of plotting a coup in Venezuela. He also surprised people in both countries by saying he was anxious to resolve a long-standing territorial dispute with Colombia over the Gulf of Venezuela.

But the problem for Mr Chávez—and this might be Mr Uribe's calculation—could be that in the end the FARC may reckon that it has more to lose than gain by a deal. “The hostages are the only thing the FARC have that gets them heard internationally and gives them any importance domestically,” says Gerson Arias of Ideas para la Paz, a think-tank in Bogotá. Whatever the outcome, all three parties in the coming negotiations face risks, some of which may be unexpected.

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Crime and democracy

Ballots, bullets and business

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From The Economist print edition

Elections in Guatemala and Jamaica illuminate the battle between democratic politics and organised crime. First, Guatemala

SINCE civilian rule was restored to Guatemala in 1986, the problems of governing a poor and violent country of 13m people have proved so great that no party has succeeded in winning more than one term in the presidency. That trend is likely to continue in a general election on September 9th. While the candidate of GANA ("Victory"), President Oscar Berger's party, trails a distant third, the opinion polls suggest a run-off between two candidates of sharply different background.

Álvaro Colom, a former businessman, heads a centre-left party and was once close to the left-wing guerrillas who fought a civil war, mainly against military dictators, for more than three decades until a 1994 peace accord. His closest rival, Otto Pérez Molina, is a former general who was in charge of army intelligence. While Mr Colom campaigns on a slogan of "hope", Mr Pérez Molina calls for a "firm hand".

Yet both men agree that violent crime is the main issue. Guatemala's murder rate of 47 per 100,000 inhabitants in 2006 is the second-highest in the Americas, after Colombia, according to the United Nations Development Programme (UNDP). That figure rises to 110 per 100,000 in Guatemala City, the capital. In Colombia the murder rate is at least falling even though armed conflict persists. In Guatemala, the figure is rising (from 31.5 per 100,000 in 2003, according to the Centre for the Study of Justice in the Americas, a think-tank). The UNDP reckons that violence costs Guatemala the equivalent of 7.3% of GDP each year. It has affected the election, too: there have been at least 45 campaign-related killings, most of them of local-government candidates, up from 29 at the last general election in 2003.

Neighbouring El Salvador also suffered a civil war, but now has less crime than Guatemala. One reason is that a new police force, created under the peace accord, is even less effective than its counterpart in El Salvador. Guatemala's National Civil Police is too small to investigate crime; prosecutors and judges are similarly weak.

Mr Berger's government has done a relatively good job on the economy, but on crime it has struggled ineffectually against powerful drug mafias, which have close ties to elements of the security forces, and against youth gangs (known as *maras*). Last month Guatemala's Congress voted to set up a joint Guatemalan-UN commission aimed at ensuring that crimes committed by the security forces are investigated and punished. But it will only advise. An earlier proposal to give the commission executive powers was thrown out by Guatemala's constitutional court as an infringement of sovereignty.

Mr Berger has been stymied in part because he commands only 24 of the 158 members of Congress. Guatemala's restored democracy features puny and mainly new parties, many of which are little more than personal vehicles. But its greatest weakness is the deep-rooted resistance of better-off Guatemalans to paying taxes. The state must somehow function with less than 10% of GDP, well below the average in Latin America.

That disadvantage is all the more glaring since the economy has been quietly improving. It has grown at an annual average rate of 3.9% under Mr Berger, compared with 2.6% under his predecessor. It has been helped by remittances from Guatemalans in the United States. Over the past year, according to the central bank, the Central American Free-Trade Agreement with the United States has added almost half a percentage point to growth.

The candidates all agree on the need to increase tax revenue, strengthen the police and the justice system, and address poverty. Mr Colom long led the opinion polls, but he is a poor public speaker. Mr Pérez Molina has closed the gap, and both men are now getting around 30% support.

Mr Pérez Molina's military background gives pause to some. He has not been accused of any of the many

atrocities committed by the security forces in the war against the guerrillas. He stresses that he wants a “plural government”. If he were to win, he would follow other Latin American conservatives who have been elected in countries where violent crime is the main issue (such as Colombia's Álvaro Uribe and El Salvador's Tony Saca). If the polls are right, Guatemalans certainly seem in no mood to trust the left: Rigoberta Menchú, an indigenous-rights activist who is standing for the presidency, attracts just 5% support.

Whoever wins, the deeper question posed by the election is whether anything much will change as a result of it. In Guatemala, more than in most Latin American countries, real power is held by the criminal syndicates on the one hand and a small coterie of businessmen on the other. “At the end of the day, the businessmen are the government regardless of who wins,” says Pedro Trujillo, a political scientist at Francisco Marroquín university. So far, they have not made an especially good job of it.

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Fidel Castro

Chronicle of a rumour foretold

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From The Economist print edition

Covering up a death has got harder

FOR the past few weeks Miami has been gripped by rumours that Fidel Castro, Cuba's sick communist president, may be dead. One factor fuelling the fire is that Cuban officials insist that his health is a state secret, though they also say he continues to recover from intestinal surgery. Another is that no new images of Mr Castro were issued on his 81st birthday last month. Then there is the deep-rooted belief among his opponents that the death of the *Líder Máximo* will be covered up.

It would not be the first time. El Cid, Spain's quasi-fictional hero of the *Reconquista*, is alleged to have carried on fighting after his death, his body strapped to his horse to terrify his Moorish opponents. China's first emperor, Qin Shi Huang, died on a journey in 210BC, but the news was kept quiet for two months until his entourage had safely returned to the capital. The death of Edward VI, a young English king, was disguised during several days of scheming over his succession. Tibetan leaders managed to hide the death of the fifth Dalai Lama for no fewer than 15 years.

But cover-ups have got much harder. Not even the sudden and destabilising death of Joseph Stalin or the expected demises of Josip Broz Tito, Leonid Brezhnev or Kim Il Sung were hushed up for long. To hide the death of a dictator, one of his sidekicks needs to have both privileged access to information and the strength to suppress its leakage. But any such person is an obvious successor and thus has little interest in concealment.

Nonsense, say the conspiracy theorists in Miami. They point to the cases of Spain's General Francisco Franco and Mao Zedong, both of whose deaths were revealed on suspiciously symbolic dates (the anniversary of Japan's surrender to China, in Mao's case). So just before October 10th, the date of Cuba's declaration of independence from Spain in 1868, expect another wave of rumours in Miami that Mr Castro has passed away.

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Jamaica's election

Change at last

Sep 6th 2007
From The Economist print edition

Signs of an end to garrison politics

THE skies cleared over Jamaica on September 3rd, as Hurricane Felix passed 400km (250 miles) to the south. Barring a couple of shoot-ups, the island's general election was as calm as the weather—remarkably so since its outcome was an opposition victory by a narrow margin.

After 18 years of government by the centre-left People's National Party (PNP), Bruce Golding, the leader of the centre-right Jamaica Labour Party (JLP), looks set to be the next prime minister. According to the Electoral Office, the JLP won 50.1% of the popular vote and 32 of the 60 seats in parliament. Mr Golding was careful not to gloat. Portia Simpson-Miller, the outgoing prime minister, was less gracious, refusing to concede until the next day and grumbling about irregularities. Recounts may drag on for days. But most of her supporters shrugged and moved on.

That is progress. In the 1970s and 1980s Jamaican elections were turf wars in which armed gangs linked to the rival parties traded bullets in “garrison” constituencies, and politicians bandied cold-war insults. The authorities have tightened controls against electoral fraud, and the public mood has altered. “Rival party workers were laughing and joking,” said a woman who has worked at polling stations in inner-city Kingston since the 1970s. “Each election, it gets better.”

The PNP was hit by corruption scandals. But it mainly paid the price of having been in power too long. Indeed, without the popular Mrs Simpson-Miller (known as “Sister P”), who took over as prime minister just 17 months ago, it might have been trounced. Mr Golding is hardly a new face—he took over his father's parliamentary seat in 1972—but he may bring a fresh approach. Tired of confrontational “garrison” politics, he left the JLP in 1995 and led a centrist ginger group. After returning to the fold, he succeeded the JLP's veteran leader, Eddie Seaga, in 2005.

Mr Golding is something of a policy wonk and had the best of a campaign debate against Mrs Simpson-Miller. His promises to abolish school fees and user charges in public hospitals were popular. He also wants to encourage cross-party consensus by requiring a two-thirds majority for key appointments, such as the chief justice. Even so, he may find it hard to govern with such a narrow majority.

He must grapple with the same issues that defeated the PNP. Economic growth remains anaemic, partly because of a large debt burden. Gangsters still court politicians. With 25 killings a week last year, the murder rate easily outstrips the worst years of the 1980s. Although some drug lords have been knocked out, others remain powerful. Jamaicans will be watching closely to see whether Mr Golding can make a difference. As politics becomes less confrontational, political loyalties can no longer be taken for granted.

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Peru

Taking on the tomb robbers

Sep 6th 2007 | LIMA
From The Economist print edition

An overdue effort to protect antiquities

Get article background

THEY attract tourists—more than 1m last year—but unfortunately Peru's ancient archaeological and historical sites also attract traffickers in antiquities. Each year artefacts worth perhaps $18m are stolen and smuggled abroad, according to a rough estimate by the government. For Peru their value is priceless—and officials are at last making a more energetic effort to stop their loss.

Peru's many cultures stretch back for more than 5,000 years, way beyond the Incas and their Spanish conquerors. The National Institute of Culture (INC) has a register of 5,500 ancient sites, but that is only a fifth of the total. A new law requires all local collections of artefacts to be registered with the INC by 2009.

In the first seven months of this year, the INC seized more than 3,000 pieces. It is also managing to repatriate more trafficked artefacts from abroad, including 18 ceramic, textile and metal objects from Germany two months ago. For the first time the government has included in the institute's budget a modest item ($625,000) for such repatriation efforts.

These efforts are being reciprocated. Auction houses have started to inform the Peruvian authorities when they are offered goods that might have been trafficked. Last month the institute agreed with the International Council of Museums, a body linked to UNESCO, a “red list” of whole categories of artefacts whose trade is sensitive, including fossils, human remains and colonial paintings. The idea is to help customs officers, art dealers and collectors identify items that may have been sacked or stolen. Peru is only the third country to have its own list, after Afghanistan and Iraq.

Blanca Alva, the INC official in charge of defending the national patrimony, says that even worse than the loss of an individual piece is the destruction of an entire site to get just one gold object. Her office has stumbled upon items, such as a 17th-century silver altar ornament, that were sold to be melted down as scrap.

Sadly for Peru, another batch of historic monuments has just been lost for ever. Last month's earthquake on the south coast destroyed several colonial churches and badly damaged others. Two museums of treasures from the Pre-Inca Paracas culture, including mummies and feathered garments, lost their outer walls. The artefacts have gone to Lima for safe keeping.

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Bangladesh

The minus-two solution

Sep 6th 2007 | DHAKA
From The Economist print edition

AFP

Both the country's leading civilian politicians are in detention. One way or another, the future looks green

Get article background

EARLIER this year Bangladesh's generals tried and failed to consign the countries' two leading civilian politicians to exile. Now they have locked them both up. On September 3rd police arrested Khaleda Zia, leader of the Bangladesh Nationalist Party (BNP) and prime minister until last October, and her younger son, on charges of corruption. Mrs Zia (pictured above after her arrest) will be the next-door prisoner in Dhaka's idle parliament building to her nemesis, Sheikh Hasina Wajed, prime minister from 1996-2001 and leader of the Awami League, the other big party.

This will be uncomfortable for both women, who loathe each other. Judging from the sentences meted out in recent months by specially created courts to members of their kleptocratic coteries, they can expect long jail sentences. Until now, despite Bangladesh's regular appearance at the top of global corruption league tables, the only politician ever convicted of graft was General Hossain Muhammad Ershad, Bangladesh' s military ruler in the 1980s. In a rare moment of unity, the two women ousted him in 1990. Since then the parties that they managed to turn into patronage-based personality cults have won about 90% of votes in elections.

But so appalling was the begums' record of governing the country that most of its 150m people were relieved when the generals took control in January. The mechanism intended to rescue democracy from viciously confrontational two-party politics—an unelected caretaker government to oversee elections—collapsed because the BNP picked a partisan president to rig the poll. Instead, the army forced him to resign as the head of the caretaker government, cancelled parliamentary elections, declared a state of emergency and installed an interim regime to pave the way for elections by December 2008.

Encouragingly, the army has so far resisted following the example of so many military regimes that form their own political parties to prolong their rule. But this, of course, might change. There is little to reassure Bangladeshis that the generals' attempt to redesign society and stamp out corruption will not end up as the totalitarian disaster that follows so many coups.

It is not clear for how much longer the emergency government will be able to keep people quiet. Since January it has detained an extraordinary number: more than 250,000, according to Human Rights Watch, a monitoring group. The army chief, Moeen U Ahmed, has accused “evil forces” of instigating student riots last month. To Bangladeshis, such language is as painfully familiar as the repression that followed the students' call for the early restoration of democracy—censorship, arrests without warrants, and the beating-up of intellectuals and journalists.

Last week a magistrate's court heard two professors allege they were tortured while detained on suspicion

of fuelling the campus violence. The court released them back into army custody. According to Odhikar, a Dhaka-based human-rights group, 126 people have been killed by law enforcement agencies since emergency rule began; at least 22 were tortured to death.

Despite the elections promised for next year, and efforts to mend a voters' list bloated with millions of extra names, this is not a country preparing for a return to democratic politics. The government refuses to lift the state of emergency. Even if it did, that would not resuscitate the political process. The BNP is in a mess. Hours before her arrest, Khaleda Zia expelled Mannan Bhuiyan, the BNP's secretary-general, for “a conspiracy to split the party”. The League, for its part, has found it impossible to part with Sheikh Hasina, who remains popular. No self-respecting politician will enter the fray while the army runs the show. Mohammad Yunus, a Nobel-prize-winning microcredit pioneer once seen as a potential candidate to fill the political vacuum, floated a party earlier in the year, but has scrapped plans to enter politics.

The generals and their civilian front are finding that their legitimacy, which rests on their competence, is eroding. In part, this stems from bad luck. Devastating floods and rising international prices for oil and food have worsened the plight of the poor. But the economic consequences of military rule have become apparent. Garment exports, the economy's backbone, have plummeted. Investment has ground to a halt. To reverse the trend, business leaders, the army chief and the pliable head of the civilian administration, Fakhruddin Ahmed, this week held a “brainstorming” session. It is more likely to have made investors cringe than reach for their wallets. The state is desperately trying to hold down prices through administrative measures, though they will inevitably rise further during Ramadan later this month. Last month it decided, in effect, to use $300m of its foreign reserves to pay for fuel subsidies.

Meanwhile Western governments and donors, who backed the army's seizure of power, are getting cold feet as human-rights abuses mount and public opinion turns. Even so, diplomats say that the present regime is “the only game in town”. The generals' secular stance and tough opposition to Islamist extremism still make them attractive to Western governments. But with the two big parties decapitated, the fear is that the Islamists, both the mainstream and a more radical margin, will profit from the political vacuum and growing economic discontent.

This week India, alarmed by the alleged involvement of Bangladeshi terrorists in last month's bombings in the southern city of Hyderabad, urged its neighbour to speed up the restoration of democracy. It would be messy, but as India knows from watching its other neighbour, Pakistan, so is the alternative.

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Australia

Local difficulties

Sep 6th 2007 | SYDNEY
From The Economist print edition

The sheriff comes to call on a deputy in trouble

Get article background

IT IS standing room only at an election rally in Bennelong, the Sydney constituency held by John Howard, Australia's prime minister. The audience of about 500 mainly middle-aged, middle-class people in the city's conservative heartland has come to hear Mike Kelly, a former army colonel in Iraq. Mr Kelly is standing in the election due this year as a candidate for the main opposition Labor Party; Labor promises to withdraw the 500 Australian combat troops Mr Howard's government has sent to Iraq. He earns loud applause when he describes the American-led invasion as “very flawed” and “lacking legitimacy”. Maxine McKew, a former television journalist who is Labor's candidate against Mr Howard in Bennelong, wins more by declaring: “I am not running as a diversionary tactic. I am running to win.”

AP

A warm Australian welcome

A year ago few would have taken such a claim seriously. But as Mr Howard prepares to seek a fifth term for his conservative coalition government, voters in suburban Sydney, who have underpinned his government since it took power 11 years ago, appear to be deserting him. An opinion poll on September 4th sent shudders through government ranks. After distribution of second votes under Australia's preferential system, it put Labor 18 points ahead of the government and Kevin Rudd, Labor's leader, 11 points ahead of Mr Howard as preferred prime minister. With these figures, Mr Howard would not just lose office; analysts say he would also lose Bennelong, whose once safe boundaries have shifted since the last election.

To compound Mr Howard's anxiety, the poll appeared on the day George Bush arrived in Sydney for a summit of the Asia Pacific Economic Co-operation forum (APEC). This gathering of 21 regional leaders to discuss climate change, trade liberalisation and closer business ties (without obligation to reach binding commitments on any of them) is the most powerful international assembly ever to convene in the country. Mr Howard had hoped that playing world statesman, with Australia's biggest, most dazzling city as backdrop, would boost his re-election chances.

Since APEC's planning, though, the political mood has shifted, especially against Mr Howard's staunch support for Mr Bush. An opinion poll on August 30th by the Lowy Institute, a Sydney think-tank, found 69% of Australians had an unfavourable view of America because of Mr Bush, and 63% because of America's foreign policies. Still, Mr Howard assured Mr Bush in Sydney that Australia would withdraw no troops from Iraq. He and Mr Bush announced stronger military ties, upgrading Australia's access to American equipment and intelligence.

Even though most Australians support their country's alliance with America, playing “deputy sheriff ” to Mr

Bush at home will not endear Mr Howard to voters. Mr Bush arrived to the tightest security measures Sydney has seen. A 5km (3-mile) concrete-and-steel fence through the business district, with about 5,000 police and troops patrolling the streets, turned the normally relaxed city into something resembling a war zone. Small-business owners, whose operations inside the security zone were killed for the duration, grumbled bitterly.

These are Mr Howard's natural constituents. Many come from suburbs such as Campbelltown, west of Bennelong, where voters are troubled less by Iraq and more by making ends meet. Aaron Rule, Campbelltown's mayor, says “mortgage stress” is a big issue there. Five interest-rate rises since the last election in 2004, at which Mr Howard promised to keep rates low, have hurt borrowers. Campbelltown belongs to a federal constituency the government has held for 11 years; Mr Rule believes it could swing back to Labor next time.

After the APEC leaders leave, Mr Howard's first task will be to name an election date. Even if his poll ratings revive somewhat, an October election would be a risk. But hanging on until November could be even worse. After figures this week showing the Australian economy growing at 4.3% a year, the central bank may be tempted to raise rates yet again in early November to deter inflation. Another rate rise would probably seal Mr Howard's fate. Either way, he has a grim choice.

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Taiwan

The trouble with democracy

Sep 6th 2007 | TAIPEI
From The Economist print edition

America blunders into Taiwan's electoral politics

Get article background

SELDOM do Taiwan's two big political parties find anything to agree on. But they are at present united in condemning recent American pronouncements on Taiwan. So when George Bush met his Chinese counterpart, Hu Jintao, in Sydney on September 6th, the Taiwanese were especially concerned at what he might say.

At issue is a referendum planned to coincide with presidential elections in Taiwan in March next year. It would seek support for a doomed attempt to join the United Nations as “Taiwan”, rather than “the Republic of China”, under which name it lost its seat to China in 1971. China—and, it seems, America—regard the referendum as the thin end of a wedge. The fat end would be a Taiwanese declaration of independence from China.

At worst, Mr Bush might have repeated a recent statement from a member of his National Security Council, Dennis Wilder, that Taiwan could not join the UN because “it is not at this point a state in the international community”. In fact, the issue seems simply to have been ignored. But that, too, was depressing for Taiwan, given the importance of the referendum. America is a vital ally. But the latest debate has brought relations to a low ebb.

Eager to build his legacy before he steps down in May next year, Taiwan's president, Chen Shui-bian, has aggressively, if unavailingly, pursued membership for Taiwan in international organisations. He has defended this policy as necessary to break out of diplomatic isolation. For 14 years Taiwan has vainly been applying for UN membership under the name “Republic of China”. Mr Chen launched the new bid in July and has backed it with a public-relations campaign that will culminate in a mass rally on September 15th, three days before the annual session of the UN General Assembly.

The referendum is in part designed to win votes for Mr Chen's Democratic Progressive Party (DPP) in presidential and legislative elections. The DPP's roots are in the Taiwan independence movement, though in office it has toned down its rhetoric. The main opposition Nationalist party, the Kuomintang or KMT, favours eventual unification with China, which is not popular with voters. To limit any political damage from the DPP's referendum, the KMT has proposed one of its own, to ask whether Taiwan should use “pragmatic and flexible strategies” to rejoin international bodies such as the UN.

China has never renounced what it says is its right to “reunify” Taiwan by force, and in 2005 enshrined this in an “Anti-Secession Law”. In the past, when angered by Taiwan's manoeuvring, China has rattled its sabre, with the unintended consequence of boosting support for the DPP. This year, however, China has largely remained calm, but for some pointed references to the Anti-Secession Law.

In fact it was America's opposition to the referendum that brought the debate to life in Taiwan. Tired of the political bickering, and doubtful about Mr Chen's leadership, the Taiwanese public showed little interest until last month. Then John Negroponte, a deputy secretary of state, said the referendum was a mistake and that America considered it a step towards a declaration of independence.

Just as China has learned in the past, however, such criticism of moves towards *de jure* independence can backfire. America's reaction has convinced the DPP, already sceptical of the depth of American support for Taiwan, that it has nothing to lose by pursuing a campaign that is bound to harm ties. Even so, the referendum may not give it the backing it wants. Under Taiwan's referendum law, the proposal needs more than half the 16.8m eligible voters to cast their ballots and more than half of those who vote to support it. Even with the bonus of American opposition, that may be too high a bar.

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Myanmar's constitutional convention

A charter for thugocracy

Sep 6th 2007 | BANGKOK
From The Economist print edition

Reuters

The curtain falls on a long-running farce, with Myanmar no nearer democracy

Get article background

AFTER 14 years of intermittent meetings and tortured prevarication, a constitutional commission appointed by Myanmar's junta has come up with the answer it first thought of: to entrench military rule in the benighted country. This week the 1,000 members of the National Convention wound up their work, producing a document outlining the principles to underpin a new constitution. It will give a thin democratic façade to continued military rule. After the actual drafting of the constitution, it will be put to a referendum—probably next year, say officials. Elections would then be held in 2009.

At the closing session of the convention, Myanmar's acting prime minister, General Thein Sein, presented its conclusion, offering what the regime regards as “disciplined democracy”, as a roaring success. Yet the country's most popular politician, Aung San Suu Kyi, who leads the main opposition National League for Democracy (NLD), is under house arrest and has in effect been excluded from the process. So have the numerous groups representing ethnic insurgencies.

Under the guidelines, a quarter of the seats in parliament will be reserved for military appointees. The president will be a military man, and the army will control important ministries, including defence and home affairs. The army would set its own budget, and would retain the right to declare a state of emergency and seize power whenever deemed necessary.

The charter would ban Miss Suu Kyi, as the widow of a foreigner, from holding elected office. It has also disappointed the hopes of the country's various rebel ethnic groups for greater autonomy. Most of these used to wage armed insurgencies but now have ceasefires with the junta. Many are now so dissatisfied with the charter that they have begun to rearm and are threatening to resume fighting.

On the pretext of “national security” the guidelines also severely curtail civil liberties and the rights of political parties, which, as yet, are unable to operate openly in Myanmar. With the exception of its headquarters in Yangon, Myanmar's main city, the offices of the NLD have been shut by the junta for years. Amnesty International, a human-rights watchdog, estimates there are more than 1,000 political prisoners in the country.

On a secret visit to Beijing earlier this year, the country's army chief, Thura Shwe Mann, told Chinese leaders that Miss Suu Kyi could not be released as she remained a big security risk. It is still unclear

whether her party, the NLD, will be allowed to run in the elections. Last November, Myanmar's most senior general, Than Shwe, said it would be allowed to field candidates. Most probably, however, the generals will find a pretext to disqualify them.

The NLD convincingly won the last elections, held in May 1990, taking more than 80% of the seats. But the army refused to recognise the results. Now the regime insists it is committed to introducing multiparty democracy. But diplomats in Yangon and the pro-democracy opposition in Myanmar think Miss Suu Kyi got it right back in 1995, when she called the convention “an absolute farce”.

Recent protests against rising fuel and food prices were put down brutally. Several thousand vigilantes, armed with wooden batons, attacked protesters in Yangon, leaving them badly beaten. The authorities have arrested hundreds of people for organising or taking part in small protests that have taken place all over Myanmar in the past few weeks. This week around 1,000 marchers joined the latest demonstration, the biggest so far, in central Myanmar, before pro-government thugs dispersed it.

The vigilantes are part of a pro-government “community group”, the Union Solidarity and Development Association, whose thugs attacked Miss Suu Kyi in 2003, when she was touring in the north of the country. The regime that deploys them seems little interested in democracy. But nor does it seem self-confident.

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Denuclearising North Korea

Scherzo

Sep 6th 2007 | TOKYO
From The Economist print edition

The music is more cheerful, but the libretto is hard to take seriously

Get article background

PROGRESS, of sorts: on September 1st and 2nd in Geneva, negotiators from the United States and North Korea reaffirmed what in essence had been agreed in February but had then met obstacles. North Korea would declare and disable its nuclear programmes; America would, among other outstanding bilateral issues, start the process of taking North Korea off its list of state sponsors of terrorism.

Not for the first time, disagreement arose at once about what had actually been negotiated. Christopher Hill, the chief American envoy, denied that his country was about to take North Korea off the blacklist, as his counterpart, Kim Kye Gwan, had claimed. That depended, Mr Hill said, on North Korea's future efforts towards denuclearisation. But even North Korea agreed that it had committed itself to declaring and disabling all its programmes by the end of the year.

It is a promise that Mr Hill badly wanted, after the schedule laid out in February had been thrown back by a tangle over North Korean funds frozen in a Macau bank. In practice, North Korea could in a jiffy declare what it possesses, if it chose to. So what remains as uncertain as ever—perhaps even to that dark country's regime itself—is North Korea's strategic intent. Whether the deadline is a declaration in name only, or some way forward on substance, matters to those other members of the six-party talks—America, South Korea, China, Japan and Russia—who want a Korean peninsula free of nuclear weapons. To that end, there is not just the question of North Korea's declaration and disablement of its nuclear programmes, but also their complete dismantlement. That was not spelled out in the February agreement. But it was central to the agreement's parent deal, reached in September 2005 before North Korea stalked off in a huff.

What remains unclear is the level of scrutiny North Korea will now allow. International inspectors this summer confirmed that the North had shut down and sealed the Yongbyon reactor and reprocessing plant responsible for producing the plutonium for the bomb that was exploded last October. Other sites were also sealed. But there is presumably much more to inspect, including facilities for enriching uranium. Were North Korea to declare all its facilities, not even the most fervent admirers of Kim Jong Il, its strange dictator, would take it at its word. A declaration followed by a refusal to allow intrusive inspections would also be a joke. And if North Korea claimed to have disposed of all its nuclear stuff, then it would need to be traced to its new owners.

Beyond such fundamental doubts, there remains the tactical question of sequencing. In return for dismantlement, North Korea has been promised aid and other goodies, starting with 950,000 tonnes of fuel oil. The problem, says a diplomat from Japan, which is expecting to pay for a good chunk of the aid, is working out a way to ensure that North Korea sticks to a timetable of dismantlement even as it gets regular deliveries of aid. This is something that will presumably be debated at the plenary sessions of the six-party talks in Beijing later this month.

Meanwhile, Japan has its own worries. It insists that North Korea must come clean about Japanese citizens kidnapped during the 1970s and 1980s—a big political issue at home. At bilateral meetings in Hanoi in March, North Korea tried to engineer a split between Japan and other members of the six-party talks, blaming Japan for holding up progress with its obsessive harping on this topic.

Since then, Japanese officials say that Shinzo Abe, the prime minister, has had cast-iron assurances from President George Bush that America will not take steps towards normalising ties with North Korea—including removing it from the terrorism blacklist—until the abductee issue is resolved. Japan wants detailed records of all those abducted and what became of them. Once North Korea has come clean about this, says a diplomat, Japan will show the greatest flexibility. As *The Economist* went to press, Japan and North Korea were meeting in Mongolia to discuss the abductees. At the least, the mood music from Ulan

Bator was very much less discordant than it was in Hanoi.

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Iraqi Kurdistan

Does independence beckon?

Sep 6th 2007 | ERBIL AND SULAYMANIYAH
From The Economist print edition

Iraq's Kurds have never had it so good. But they still have a long way to go before securing a safe and stable, let alone democratic, future

Get article background

DURING a recent voyage around Iraqi Kurdistan, not a single sign or hint that the place is officially part of a federal Iraq was in evidence. Landing at Erbil International Airport (as the Kurds call it, invariably also noting that it has one of the longest runways in the world), you see no shadow of an Iraqi, as opposed to Kurdish, presence. You show your passport or offer your bags for inspection to officers bearing bright Kurdish insignia on crisp uniforms.

In the past month, virtually no insurgent violence has been recorded in Iraqi Kurdistan, bar a shocking but isolated spate of suicide-bombings that killed more than 400 members of the Yazidi sect in two villages near Sinjar, on the fringe of the area controlled by the Kurds. Otherwise, the last big attacks were in May—one in Erbil, the Kurds' capital, the other in a town of mixed population, Makhmour, on the contested western edge of the region, killing at least 30 people.

In the rest of Iraq, by contrast, nearly a thousand civilians and insurgents have been killed in the same period, along with more than 70 American soldiers. There are no American forces in Iraqi Kurdistan, bar a handful guarding a small American diplomatic compound outside Erbil. The only sizeable foreign military presence is a South Korean force of around 1,200, which spends much of its time helping with construction and IT. In short, Iraqi Kurdistan is a haven of peace in a sea of turmoil.

Travellers arriving at Erbil airport jostle with Lebanese bankers, Norwegian oilmen and Dubai traders sniffing for business; most now give bomb-ridden Baghdad, 250 miles (400km) to the south, a wide berth. At the eight or nine security checkpoints through which you pass on the road from Erbil to Sulaymaniyah, the two main cities of Iraq's Kurdistan Region, as international documents officially call it, you never spot the name of Iraq on a military or police badge.

Arabic is used hardly at all; few Kurds under 25 understand more than a smattering of it. Schools are starting to teach English as much as Arabic as a second language. Increasingly, you are expected to call Erbil by its Kurdish name, Hawler (pronounced, roughly, “How-lair”). Above all, the Iraqi flag, in a region where flags matter mightily, flutters nowhere. It has no place at the airport or over any official building, such as the Kurds' lively parliament.

The issue of maps (above) is just as toxic and tricky. Where, indeed, are the borders of Iraqi Kurdistan (let alone those of the parts of Turkey, Iran and Syria, where another 21m-plus Kurds reside, alongside 4.6m Iraqi ones)? The Iraqi Kurds' standard map that hangs nowadays on ministry walls, in restaurants and for sale in kiosks shows Iraqi Kurdistan stretching a lot further than the area currently under the Kurds' control.

It sweeps in an arc from Sinjar and Zakho, in the north-west, near the border with Turkey, brushes Mosul's once largely Kurdish east side, then runs down the east bank of the river Tigris, taking in the whole of the contested province of Kirkuk (which Arab maps call Tamim), then runs on along the Hamrin mountains north-east of Baghdad, all the way down to a sliver of land east of the Iraqi capital, abutting the Iranian border near the town of Badreh.

Even the most acquisitively nationalist Kurds do not take this maximal map seriously. For one thing, some of it is inhabited predominantly by Arabs—who would not be trusted in Kurdistan. But most Kurds do demand fat chunks of extra territory, especially but not only in Kirkuk province, which they were deprived of by Saddam when he Arabised Kurdish lands by expelling Kurds and bringing in Arab settlers from Iraq's south and centre.

It is hard to say exactly where Kurdish influence or control now extends, though a “green line” has roughly demarcated their zone since the end of the first Gulf war in 1991, giving Kurds an area in which they could safely govern themselves. But after the American invasion of 2003 they extended their zone of influence, marked by their own checkpoints (technically manned by the Iraqi army but actually by Kurdish units of it), in predominantly Kurdish areas west and south of the green line, which has become blurred and sporadically shifts.

The Iraqi Kurds' standard map tactfully omits to paint the Greater Kurdistan where their ethnic brethren predominate in neighbouring Turkey (14m of them), Iran (some 6m) and Syria (1m). It certainly does not lay claim, as dreamers of a unified Greater Kurdistan do, to a fantastical spur of land that would jut across south-eastern Turkey and northern Syria to reach the Mediterranean, plus another tongue of territory stretching south-eastwards to let Kurds dip their toes in the Persian Gulf beyond Basra. That would be going too far.

But for every Iraqi Kurd, Article 140 of the Iraqi constitution that was endorsed in an Iraq-wide referendum in late 2005 is a national mantra repeated in almost every political conversation. That article provides for a further referendum, following a census and a supposedly voluntary exchange of populations known optimistically as “normalisation”, to determine whether people in Kirkuk province “and other disputed territories” want to stay as part of the Arab-ruled part of Iraq or join Kurdistan or perhaps, in the case of Kirkuk, live in a specially administered region.

Too many Kirkuks

That census, due to have been completed by the end of July, has barely begun. Most Kurdish politicians still insist publicly that the December 31st deadline for holding the referendum will, as the constitution says, be met. In private, most admit it will not. What they dread most is an open-ended postponement which may, they fear, let Kirkuk, with some 5% of the world's oil reserves, slip out of their grasp.

Nor has it been decided just what questions would be asked, nor whether the people's wishes would be assessed district by district or province-wide. Officially, the Kurds want the whole province. In fact, many realise it would be more sensible to take just those districts where they are a large majority rather than incorporate slices of territory full of sullen Sunni Arabs who might make Kurdistan unworkable. At the

least, the Kurds would take back the large chunks of Kirkuk province that Saddam gerrymandered out of the old Kurdish region. But the blanket of stability covering the area of Iraqi Kurdistan recognised by the government in Baghdad emphatically excludes Kirkuk city, now sealed off from the rest of Kurdistan by a series of intrusive checkpoints.

Indeed, the tinderbox city at the heart of the matter is fizzling ever more menacingly. Per head of population, acts of violence are now more frequent there than in bloody Baghdad, according to a Western diplomat who monitors the score. Moreover, in some nearby towns in Kirkuk province to the south and west of the city, such as Arab-dominated Hawija, al-Qaeda and Saddam loyalists have established a brooding presence.

Though the Kurds' line of influence (if not control) extends into some two-thirds of Kirkuk province, there are plenty of blurred areas. Kurds control the towns of Chamchamal, Kifri and Kalar, to the east of Kirkuk city, and hold sway over Khaniquin, near the border with Iran. But other towns, such as Tuz Kurmatu, which has a strong and twitchy Turkoman populace, and Dubus, where Arabs predominate, resist what they see as the Kurds' expansion into Kirkuk province's southern half.

The oil factor is important but not crucial: if Kurdistan stays part of a federal Iraq, the Arabs in non-oil-rich parts of Iraq would still get a fair share of oil revenues, whether or not Kirkuk is run by the Kurds. The Kurds have agreed that they would get 17% of Iraq's oil income from fields already in operation. But they are still arguing with the authorities in Baghdad over the management, exploration and contracts in unexploited or not-yet-discovered fields.

Reuters

Talabani and Barzani, pals for the cause

Economically viable?

Several oil companies, mostly mid-sized and small independent ones, have signed deals with the Kurdistan regional government, and a dozen more are in negotiation, all waiting impatiently for the government in Baghdad to give the green light. The Kurds say they can dish out export permits, though the authorities in Baghdad disagree. More to the point, the Kurds do not control the existing pipelines for export. So they want to build their own “feeder” pipelines to join the national one just before it reaches the Turkish border. Several Western firms hope to get in on this act.

Plainly, the Kurds are seeking to be as independent in economics as a landlocked country can be: a huge challenge. From 1991 until 2003, when the Americans invaded, the Kurds depended on smuggling, minimal trade with neighbouring countries, foreign handouts and a share (often stingily and belatedly distributed) of the UN's corrupt and maladministered oil-for-food programme. In the past few years they have tried valiantly to create an economy of their own. But they are starting almost from scratch.

Farming was virtually destroyed by Saddam. According to today's planning minister, the percentage of Kurds in agriculture has dropped from some 60% to around 10% in the past generation. During his Anfal (Spoils) campaign to suppress the rebellious Kurds in the late 1980s, Saddam's forces destroyed more than 4,000 villages and killed tens of thousands of civilians—180,000, according to the Kurds.

There is no banking (“We have no access to money,” says Osman Shwani, the planning minister), no insurance, no postal service and in the past few years the Kurds' budget has entirely lacked public scrutiny. Commercial law is less than rudimentary. There is a gaping lack of statistics. Mr Shwani freely admits he does not know the size of Kurdistan's GDP.

Starting from zero

There is virtually no tax system. In theory, income tax of between 3% and 10% is paid by salaried earners. “But no one has ever paid taxes,” says Mr Shwani. One of the biggest brakes on the economy is the vast proportion of people on the public payroll, which gobbles up about three-quarters of the budget.

But things are starting to move in the right direction. Parliament, elected five times since 1992, has had

vigorous debates over Kurdistan's own oil laws—on how, for instance, to handle contracts with foreign investors. But even they will depend to a degree on harmonisation with the oil laws still not passed by a dismally weak and divided central government in Baghdad.

Another huge problem for Iraqi Kurdistan is the fact that it has been run, since 1991, by two rival administrations. In the provinces of Dohuk and Erbil, the Barzani family, which runs the Kurdistan Democratic Party (KDP), has called the shots for generations. To the east, the province of Sulaymaniyah has been run by the Patriotic Union of Kurdistan (PUK), run by Jalal Talabani; this, too, has become something of a family affair. In the late 1990s, the two outfits fought a vicious civil war, in which at least 3,000 people—some put the figure at more than 10,000—were killed.

To a large degree, the party and the union are tribal fiefs, with power, money and even land distributed from the top by the ruling families. While Mr Talabani is currently president of federal Iraq, Massoud Barzani is president of Kurdistan; his nephew, Nechirvan Barzani, is its prime minister; Massoud's son, Masrur Barzani, heads the powerful intelligence service. At the end of the year, one of Mr Talabani's men is supposed to take over as Kurdistan's prime minister. No one is sure whether that will happen smoothly.

Moreover, the notion that Iraqi Kurdistan is a haven of democracy is far-fetched. The two fiefs control virtually all public activity, including the media, hitherto with remarkably little scrutiny; outright opposition has invariably been squeezed out, often amid accusations of betraying the sacred cause of Kurdistan. Patronage—some call it corruption—is the norm. The Islamists, with a reputation for honesty, are the third force, small for now, but waiting in the wings. If Kurdistan is to thrive, its own politics must loosen up and become more open, if not a Western-style free-for-all.

Real country, real democracy?

Yet on both scores—democracy and unity—there has been progress. The two administrations are undergoing a merger. All but three ministries have joined up (the last to unite being the most awkward: defence, interior and finance). On the democracy front, parliament, which includes four small blocks of opposition parties with the Islamists to the fore, has lively debates and is making government more accountable. A decent constitution for the region is set to enshrine an array of rights, including for Christians, Yazidis (a sect of their own) and other minorities in Kurdistan.

Two small but plucky opposition newspapers give an airing to the peccadillos of the party duopoly. And even some of the party-owned media outlets—for instance, Kurdsat TV, owned and run by Mr Talabani's modernising wife, Herro—occasionally broach topics that were once taboo.

Especially compared with the rest of Iraq, Kurdistan has been making strides on every front. But this does not mean it will survive as a fledgling nation.

The Iraqi Kurds depend, in the end, on three main things: their hardened fighting men, known as the Peshmergas (“those willing to die”), technically a “regional protection force” within Iraq; their neighbours, especially the Turks; and the mountains (“the Kurds' only friends”, as their centuries-old saying goes).

The Peshmergas are probably Iraq's best fighting forces in terms of discipline, morale and motivation. According to Jafar Ali Mustafa, the Kurds' minister of state for Peshmerga affairs (in fact, the PUK's defence boss), they number some 200,000; half are loyal to his union, half to the Barzanis' KDP. A merger is proceeding steadily, he says.

The Kurds' relations with their neighbours are just as critical. Turkey, with its 14m-odd Kurds of its own (many of them well assimilated) in a population of 75m, has frequently issued threats to invade Iraqi Kurdistan and clobber its Kurds if they make a grab for Kirkuk, where Turkey considers itself the guarantor of the rights of the Turkomans, their ethnic kinsfolk from the days when the area was part of the Ottoman empire. It also threatens to invade if Iraq's Kurds do not oust or corral the 3,000-plus guerrillas of the Kurdistan Workers' Party (PKK), who hide in the remotest mountains of northern Iraq, where they plan and train for their lethal operations in south-eastern Turkey.

The Iraqi Kurds consider the PKK a nuisance, but are unlikely to spill the blood of their ethnic brothers. They argue, instead, that the Turks should negotiate with them. The Iraqi Kurds' leaders may, however, turn a blind eye if the PKK is attacked within Iraqi Kurdish territory, perhaps even with the complicity of

the Americans, who sorely need to improve their relations with Turkey, a rare and crucial Muslim ally of America in the Middle East. But many rank-and-file Kurds would be furious.

However, the Turks and Iraqi Kurds have been getting on better, as the Kurdish government settles down and since Turkey's mildly Islamist government was re-elected in July, scoring notably well in Turkey's Kurdish areas. Moreover, Turkey is by far the Iraqi Kurds' biggest economic partner. Erbil's huge new airport, for instance, is a Turkish (and British) project. If Turkey and Iraqi Kurdistan could come to an accommodation, which looks more feasible than before, it would vastly boost the chances of the latter's survival. To a lesser extent, the same goes for the Iraqi Kurds' relations with Iran and Syria, both of which are wary of an independent Iraqi Kurdistan but could probably live with it.

Iraq's Sunni Arabs and Iraq's other Arab neighbours, mainly Sunni (as are most Kurds), both remain deeply hostile to the notion of an autonomous, let alone independent, Kurdistan. They see the Kurds as destroyers of an Arab nation and bent on undermining the Arabs' professed unity on a wider scale. They are enraged by the Kurds' refusal to fly the Iraqi flag, and ritually accuse them of being a fifth column for Israel and Zionists.

Without fail, say Kurdish ministers, visiting Arab journalists raise both topics. In response, the Kurds point out that several Arab countries have relations with Israel. “The chauvinist Arabs always call us a second Israel,” says Mr Jafar, the Peshmerga leader. He denies that Israel and the Kurds have military or intelligence contacts. “I wish we did,” he says breezily.

Kurdish leaders are as candid about their desire for the Americans to stay on in Iraq or, if they are bound to withdraw, to keep a military base in Iraqi Kurdistan as a guarantor of the Kurds' national safety. “We'd like the Americans to put their biggest base in Kurdistan,” says Mr Jafar.

AFP

Kurds must plot their next move cunningly

But the Americans have so far been wary of too warmly embracing the Kurds, concentrating instead on trying to reconcile Sunni and Shia Arabs in Baghdad. “We love the Americans but they don't love us,” Nechirvan Barzani, the Kurds' prime minister, is said recently to have sighed.

Hanging on to what you've got

Could the Kurds be satisfied with extreme autonomy in northern Iraq? An informal referendum in 2005 suggested that 98% of them would like outright independence if they could have it. But almost every senior Kurd in Iraq says he would accept extreme autonomy—provided there is a genuine federation and that the central government in Baghdad gives the Kurds a good deal, especially over the management and exploration of oil in the north. Getting back Kirkuk means a lot too; conceivably, a special deal could be arranged there to leave the city with a status of its own.

Is it possible to feel both Kurdish and Iraqi? A former long-serving minister in Iraq's Kurdish government, who is a noted historian, barely blinks. “Frankly, no.” Then, after a pause, he adds: “If Iraq ever became truly democratic, maybe.”

Masrur Barzani, the 38-year-old intelligence chief and possible future head of the Barzani clan, recommends a “three-state solution”, presumably meaning that Iraq, which he calls “the illusion of a country that doesn't really exist”, should one day be divided into a three-way confederation. To most Iraqi Kurds, the emergence of a kindly, federal, Arab-run Iraq in which they could have a comfy existence is an absurd prospect.

Briefly after the Ottoman Turks' empire collapsed, the Kurds seemed in reach of a homeland of their own—only to be betrayed by the great powers, Britain to the fore. Now they are enjoying a golden age of not-quite-independence for longer than at any time in their modern history. So why would they risk a reversion to a past of subjugation by Arabs, Turks or Persians?

If they are sensible, the Kurds will not rush towards independence. To be landlocked and without permanently friendly neighbours is a pretty hopeless recipe for statehood. The outside powers on which

the Kurds ultimately depend, especially Turkey and the United States, would not allow them to break away. The Turks could throttle them economically if not bash them militarily; the Americans may well turn their backs, reckoning that it is strategically more important to curry favour with Turks and Arabs.

But if the Iraqi Kurds can bed down quietly for, say, five or ten years, securing their borders, making their economy work, building a modicum of freedom if not full-fledged democracy, and staying out of the trouble swirling around them in the rest of Iraq, it will be increasingly impossible for the rest of the world to ignore their patently rightful claim to self-determination. They have at least a chance of getting it.

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Morocco

The king still runs the show

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AP

Whoever wins the coming election, ultimate power will not be shifting soon

EXCEPT for discarded flyers littering the city streets, it is hard to tell that this is election season. There are few posters or big rallies, and more chatter about whether to vote rather than whom to vote for. In any case, most Moroccans seem sure what the polls on September 7th will bring: the same array of minority parties as at the last general election, all haggling for shares in a cabinet approved by the king. In other words, it is unlikely to change the way Morocco is run.

The shoulder-shrugging is understandable. In Moroccan politics, King Muhammad VI still holds all the trumps, even if he does not play them with as much glee as his feared father, whom he succeeded in 1999. Aside from heading the army and state, and being Commander of the Faithful, he appoints and fires ministers, governors and judges, and issues or vetoes laws. To insult him is a crime; to win favour brings honour and, quite possibly, wealth.

By the reckoning of one prominent Moroccan analyst, all the kingdom's elected institutions together represent a mere fifth of actual decision-making clout. The new rules by which this parliament is being elected may even dilute this role a bit. They divide the country into 95 districts, allotting an average of three deputies to each. By a party-list system with proportional representation that works at district level, the best-scoring party wins a seat for the first candidate on its list. But to take a second seat, it must have won at least twice as many votes as any other party.

With four large parties fielding candidates nationwide and dozens more parties mustering local lists, no single party stands a chance of gaining anything close to a parliamentary majority. The outcome, then, will be a coalition government, whose members will look to the king as their patron and arbiter.

This is a game which all the parties have agreed to, for different reasons. For small, upstart parties, it offers a way of getting a foot in the door. For the established secular parties of left, right and centre, which have seen their appeal wane after serving too long and delivering too little, the system promises to slow their decline.

The system suits the main challenger, too. The Party of Justice and Development (PJD), Morocco's main legal Islamist group, has moved from strength to strength since its creation ten years ago. It held 45 seats in the outgoing parliament, even though it had succumbed to royal pressure and did not contest many districts in the last general election, in 2002. This time it is fielding many more candidates.

In a different electoral system, it could conceivably win outright. But its leaders, who claim to regard

Turkey's mildly Islamist ruling party (with the same name) as a model rather than more radical Islamist groups, such as Hamas, do not seem to mind the institutional restraints. Proving its loyalty to the throne has helped the PJD avoid the fate of its more extreme rival, the longer established Adl wal Ihsan (Justice and Welfare) Party, which is formally banned for its refusal to accept the king as Commander of the Faithful. Besides, the PJD has profited precisely from being an opposition party, capitalising on the perceived failure of secularists to deliver the kind of change many Moroccans yearn for.

A walk with Lahcen Daoudi, the party's deputy chief, through a crowded working-class suburb of Fez, a former imperial capital, reveals much about the party's appeal. Mr Daoudi, an avuncular economics professor, marches into cafés, glad-handing startled card-players. Aides pass out CD recordings of his performance as an MP who hectored the government over corruption. As his entourage marches along, a chorus, including women sporting party T-shirts and baseball caps over their headscarves, chant slogans that proclaim a vote for the party is a vote “in the way of God”. Aides explain that the candidate has covered every street in his district this way, whereas his opponent holds court at home, and sends out agents who promise to pay 500 dirhams ($61) a vote.

Mr Daoudi says he promises nothing but honesty, hard work and close contact with constituents. Asked what makes his party Islamist, if it does not expect to be able to pass any Islamicising laws, he says that Islam is a reference and a system of values. “I have to use slogans that mobilise people,” he says candidly. “So I say, hard work is a duty like prayer. If you cheat, you are not being a Muslim.”

Mr Daoudi draws nods of approval by attacking what he calls the “Escobars”, fat cats who keep Moroccans poor, because “poverty is what they trade on”. Indeed, the distribution of wealth and social services is strikingly skewed. A recent acceleration of economic growth, which now tops 7%, has so far enriched few people, even as property prices, boosted by an influx of European and Gulf Arab investment, have soared further out of reach of ordinary Moroccans.

Yet even ardent critics of the government admit that much has improved. Big infrastructure projects are under way. Public-housing initiatives have begun, as well as a model micro-finance programme. Able technocrats have been put into key administrative posts. The pace of political reform is frustratingly slow, for sure, with the palace still wielding crushing influence. But this has let the system absorb, and to a certain extent co-opt, the Islamists.

The king and his counsellors see economic growth as the engine that will pull Morocco not just out of poverty but also into an era of less contentious politics. There are economic troubles apart from poverty, such as the persistence of monopolistic practices by royal favourites, a capricious legal system, low education standards and an entrepreneurial class that has learned to avoid risk. Yet it may be significant that whereas the palace's holdings, direct and indirect, once made up an estimated 60% of equity on the stock exchange, as the pie has grown that share has fallen by half. With time, perhaps the king will relinquish his stranglehold on the country's politics, too.

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Congo

Will it blow up all over again?

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From The Economist print edition

A renewal of fighting in eastern Congo could tear the country apart once more

Get article background

WHEN fighting erupted at the end of August between the Congolese army and a renegade general, Laurent Nkunda, who proclaims himself the saviour of Congo's Tutsi minority, alarm bells began to ring all over the region: not least because neighbouring Rwanda, which is comparatively tiny but has become confident, muscular and assertive, was once again implicated. Unless governments of all the region's countries co-operate to dampen the flames—with help from the UN, whose 17,000 troops in Congo are the body's biggest peacekeeping force in the world—the conflict could reignite, and spread.

Congolese history has had a tragic way of repeating itself. In the east of that huge and ramshackle country, the continuing presence of Hutu rebels—originally from across the border in Rwanda—has twice served as a justification for Rwandan government troops to invade north-eastern Congo. They accuse the rebels of masterminding the genocide of 1994, when some 800,000 Rwandans, mainly Tutsis, were killed in a few months by their Hutu compatriots. Three years after that horror, it was Rwandan government soldiers who brought a Congolese guerrilla leader, Laurent Kabila, to power in Congo, toppling Mobutu Sese Seko, who had pillaged the country for more than 30 years, and massacring tens of thousands of fleeing Hutus along the way. A second similar intervention a year later helped ignite another even worse bout of war that lasted another five years, drawing in forces from eight countries and leaving some 4m people dead.

Last year things seemed at last to be improving. After Laurent Kabila's son Joseph won an election, Congo's first proper one for more than 40 years, he promised as a priority to bring peace to Congo's troubled east. In January this year, in an apparent breakthrough in regional diplomacy, Rwanda's government helped him broker a deal to make everyone happy.

Thousands of fighters loyal to General Nkunda were inducted into special mixed brigades as a first step towards ending the rogue general's three-year insurgency. The special force was to pursue the Rwandan Hutu rebels who still remained in Congo and whose disarmament and repatriation were a previous condition for Rwanda's troops to withdraw. But Mr Kabila's government in Kinshasa, far away to the west, has failed to meet it.

“When they struck this deal, the insurgency was only in a little corner of the province,” says Léon Barienga, head of North Kivu's provincial assembly. “But then Nkunda was able to enlarge his territory,

and the killings and rapes, this whole nightmare, started." Mixed-brigade operations against Hutu rebels deteriorated into a campaign of terror against civilians that has so far forced more than 200,000 Congolese in the area to flee from their homes.

EPA

Nkunda sticks it to them

A few weeks ago the Congolese army suspended operations by the hybrid force and said it would be replaced by regular army brigades. But it was already too late. General Nkunda has emerged stronger than before. He has used government money for salaries to replenish his supplies. He has deployed his forces throughout the province in strategic places that he had not controlled before, including supply routes on the border with Rwanda. The UN has promised to help Congo's pretty ineffective army with logistics, but will not fight on its side.

In an effort to stem the slide towards war, Rwanda's foreign minister, Charles Murigande, flew to Kinshasa, the first such visit in three years. But the two countries are still far from seeing eye to eye on security along their common border. Their governments agreed to ask the UN to increase its peacekeepers' patrols there. But the Congolese did so for fear that Rwandan troops are already crossing over into Congo. And as a quid pro quo, the Rwandans once more got the Congolese to promise to hunt down and round up the Rwandan Hutu rebels.

The talks failed to address General Nkunda at all. At present there is no framework for negotiating with him. Congo's government evidently wants to bludgeon him into submission. Will the Rwandans let that happen? "He has friends in Rwanda," says Pastor Mwendapole, his chief ideologue. "If things blow up here, do you really believe that Rwanda is going to stand there with its arms crossed? They'll come." If he is right, it is grim news for Congo—and for all its eastern peoples.

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Germany's government

A coalition of the unwilling

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AFP

At half-time, the grand coalition seems subdued—maybe too much so

Get article background

THE interval is over, and the actors in Germany's grand coalition have come back onstage. The script for the next two years calls for the Christian Democrats (CDU) and Social Democrats (SPD) to live together until they disband to fight each other in a federal election by September 2009. But it is between the lines that one finds the real plot: complacency and angst, meaning that the second act will hardly be action-packed (unless terrorism strikes, see article).

The government's goals, says the CDU chancellor, Angela Merkel, are to “strengthen the bases of the economic upswing” and “leave nobody behind.” Yet unlike France's president, Nicolas Sarkozy, Ms Merkel has no big plans to achieve them. Boosting long-term growth would take painful reforms that appeal to few, especially when the economy seems to be doing fine without them. There is more talk of inclusion, but the parties disagree over how to deliver it. Both are committed to eliminating the federal budget deficit by 2011, ruling out big spending. “Over the next two years there will be lots of symbolic gestures and nothing real,” predicts Klaus Zimmermann, president of DIW, an economic research institute in Berlin.

For now, symbolism may suffice. Exports are booming, unemployment is falling and the economy may grow by some 2.5% in 2007 and 2008, its best performance in years. In the first half of 2007 the public sector overall recorded a surplus for the first time since unification in 1990. Yet the mood of the three coalition partners (the CDU's Bavarian ally, the Christian Social Union, is the third) is jittery. In January their popularity will be tested in elections in two important states, Hesse and Lower Saxony. Bavaria votes in September 2008.

The SPD is especially nervous. Voters have not forgiven the party for the cuts in unemployment benefits made under Ms Merkel's predecessor, Gerhard Schröder. The Left Party, a new party formed by the ex-communists and some left-wing defectors from the SPD, is luring away traditional supporters. Further liberalising reforms would be electoral poison.

Ms Merkel's coalition-management skills create an illusion of progress. At a recent get-together in a Prussian palace, the cabinet found enough common ground to produce 12 pages of promises, but even the best are only timid steps in the right direction. For example, from November Germany will open its job market to foreign engineering students at German universities and to engineers from all 12 new members of the European Union. And the payroll tax to finance unemployment benefits will be trimmed from 4.2% to 3.9% to encourage hiring.

More might have been hoped for from a coalition with a big majority and a strong economy. The opening to foreign engineers will ease but not resolve a labour shortage that costs industry an estimated €20 billion ($27 billion) in lost output a year. All the other old EU members bar Austria have either opened their labour markets fully to easterners already, or plan to do so by 2009. Holger Schmieding, an economist at Bank of America, reckons that the government could afford to cut unemployment-insurance contributions to 3%, which might create 250,000 new jobs.

The government has bravely introduced a gradual increase in the retirement age (to 67), but it has been less bold in restructuring the health system, which threatens to gobble up an ever rising share of GDP at the expense of investment in education and infrastructure. It has no plans to tackle the network of regulations that makes it expensive to fire workers, and thus risky to hire them. A second instalment of Germany's federal redesign, which would limit states' debts but allow them to raise (or lower) taxes, may just squeak through.

In place of reform, the coalition offers comforting but vague promises. There will be help for the working poor in higher child benefits and subsidies to childless households. The number of school drop-outs will be cut by half by 2010. A bonus will be paid to firms that train more people than average. Workers in soon-to-be-liberalised postal services will get a minimum wage (which the SPD would like to extend across the economy). The government may help states to finance more crèches for children; it has mooted the idea of ten days' paid leave for workers to arrange nursing for sick parents. Such benevolence carries “clear social-democratic handwriting”, boasts the vice-chancellor (and labour minister), Franz Müntefering.

Yet to his dismay, it is Ms Merkel who gets the credit. In most polls, the CDU is ten points ahead of the hapless SPD, which remains divided over whether to defend Mr Schröder's reforms and over its own role in the coalition.

The SPD has championed the coalition's boldest policy, an “integrated energy and climate programme” aimed at cutting Germany's greenhouse-gas emissions by 40% from 1990 levels by 2020. But Ms Merkel is its most visible defender. The foreign minister, Frank-Walter Steinmeier, is from the SPD (he was Mr Schröder's chief of staff), but it was the chancellor who lectured her hosts about human rights on a trip to China last month. Such stances help to make Ms Merkel appealing to the Greens, who could yet be an alternative to the SPD as a coalition partner.

The odds remain that both the economic upswing and the coalition will survive until the 2009 election. But there are risks to both. As so often, German banks have suffered disproportionately from the subprime mortgage mess in America (see article). If the American economy buckles, Germany's export-led growth could quickly fade. And the SPD may yet be tempted to bail out of the coalition rather than go on seeing Ms Merkel gather both credit and strength.

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Terrorist plots in Europe

Foiled, this time

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A timely reminder of the risk of terrorism in Europe

THE targets are said to have included Frankfurt airport, Germany's busiest, and an American air base. The collective power of the bombs would have exceeded those used in Madrid and London in 2004 and 2005 respectively. But on September 4th the plot to commit Germany's bloodiest act of terrorism was foiled with the arrest of three men in a village in central Germany. The arrests came a day after Danish police averted another “major act of terrorism” by arresting eight young Muslims in the suburbs of Copenhagen. Six were later released but two were charged.

That terrorist conspiracies could be hatched in Denmark and Germany is not a complete surprise. The Danes have staged three terrorism swoops in three years. Last year two men of Lebanese origin planted suitcase bombs on two trains in Germany; they failed to explode. There have been many reports of young Germans going to Pakistan for training sessions. The interior minister, Wolfgang Schäuble, has given warning of high risks.

Yet most Germans assumed their country was relatively safe, mainly because (unlike Britain, Denmark and Spain) it did not send troops to Iraq. “Germans don't take the threat as seriously as they should,” said Guido Steinberg, a former adviser to the chancellery on terrorism, days before the arrests.

That will change now. Two of the arrested men are German converts to Islam. The other is one of Germany's 3m Turks, who have provided few terrorist recruits. Two of the three had trained in Pakistan and all seem to have links with the Islamic Jihad Union, which staged several terrorist attacks in Uzbekistan in 2004. They may have been planning to strike on the anniversary of the September 11th attacks in New York. And they may have hoped to affect the debate on Germany's 3,000 troops in Afghanistan. Germany is to decide shortly whether to renew its commitments there, which are unpopular and opposed by many Social Democrats.

Germany's law-enforcement coup may also boost Mr Schäuble's campaign for a law that would allow the authorities to spy on suspected terrorists by secretly inserting “remote forensic software” into their computers. That proposal has sparked an outcry in a country that is especially sensitive to the possibility of abuse by secret police. Since the law has not yet been passed, the authorities could not use such spyware to catch the would-be bombers, Mr Schäuble said. But he added that, since terrorists use “modern communications”, so should the government.

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Poland's government

Squeaky if not clean

Sep 6th 2007 | WARSAW
From The Economist print edition

The government's crude ways may be worse than the sins it seeks to extirpate

THOSE who predicted that the Polish government would drop the dramatics and fade gracefully from view in the run-up to a general election next month have been proved spectacularly wrong. A cloak-and-dagger operation at the end of August led to the arrests of a former interior minister, a former chief of police and the chief executive of Poland's largest insurer. They were made, dramatically enough, by balaclava-clad special forces.

The evidence for the arrests suggested that Janusz Kaczmarek, who until his dismissal as interior minister in early August was a close ally of President Lech Kaczynski, was involved in a leak that led to the failure of a sting operation by a state anti-corruption agency. The three men have now been released on bail, but Jaromir Netzel, chief executive of the PZU insurance company, has been sacked. A warrant has been issued for a rich businessmen, Ryszard Krauze, who is abroad.

Many questions remain. One is why the former chief of police, Konrad Kornatowski, was detained just before he gave evidence to a parliamentary committee. He might yet confirm claims by Mr Kaczmarek that political rivals and critical journalists were illegally put under surveillance on the orders of the justice minister, Zbigniew Ziobro. Another concern is that the office of prosecutor-general is part of the justice portfolio. Critics say Mr Ziobro, who is close to the prime minister, Jaroslaw Kaczynski, is too partisan for the role.

There are broader worries about the undermining of judicial independence since the Kaczynski brothers' party, Law and Justice, took power two years ago. They set up the state anti-corruption agency, whose operation to expose the dealings of a coalition partner has led to demands for a parliamentary investigation. Roman Giertych, leader of another former coalition party, accuses Law and Justice of employing “Soviet methods”. The prime minister retorts that the government has been acting “like a good surgeon” cutting out “diseased tissue”.

The Kaczynskis may have been right to try to rid Polish public life of post-communist sleaze. But they have failed, so far, to come up with evidence for the existence of an all-encompassing network of corrupt businesspeople, politicians and communist spooks, the *uklad*, which they say has ruled Poland since 1989. And their methods have sometimes smacked more of a witch-hunt than of due process.

The latest arrests may have had a political motive. The governor's insistence that protection of the rich and powerful has ended resonates with voters. For the first time in a year, a poll has just put Law and Justice ahead of the largest opposition party, the liberal Civic Platform. This puts the opposition in an awkward dilemma: whether to vote to keep a government it is eager to oust, or to back an early election it now risks losing.

An early election and a change of government still look the most likely outcome of all this. But Law and Justice could yet ride back into power on a wave of populist support. Democracy in eastern Europe remains a learning process. But Poland's ruling party may not prove to have been the best of teachers.

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French education

Bac to school

Sep 6th 2007 | PARIS
From The Economist print edition

Nicolas Sarkozy wants to shake up France's schools

Get article background

LADEN with hefty backpacks, French children filed back to school this week amid fresh agonising about the education system. Given its reputation for rigour and secular egalitarianism, and its well-regarded *baccalauréat* exam, this is surprising. What do the French think is wrong?

Quite a lot, to judge from a 30-page “letter to teachers” just sent by President Nicolas Sarkozy. Too many school drop-outs; not enough respect or authority in the classroom (pupils, he says, should stand up when the teacher enters); too little value placed on the teaching profession; too little art and sport in the curriculum; too much passive rote-learning; and too much “theory and abstraction”. France, the president concludes, needs “to rebuild the foundations” of its education system.

The criticisms touch all levels. A government-commissioned report reveals that two in five pupils leave primary school with “serious learning gaps” in basic reading, writing and arithmetic. One in five finish secondary school with no qualification at all. Even the *baccalauréat* is under attack. This year's pass rate of 83% is up from just over 60% in the early 1960s. “The *bac* is worth absolutely nothing,” asserts Jean-Robert Pitte, president of the Sorbonne-University of Paris IV.

The *bac* is not under review, but other changes have begun. Xavier Darcos, the education minister, has loosened school-catchment rules, to allow children from poor areas to get places in good schools elsewhere. He has set up an after-hours service for lower secondary schools, to supervise homework and keep kids off the streets. Mr Sarkozy has established a commission under Michel Rocard, a former prime minister and yet another of his recruits from the left, to look into the teaching profession—and perhaps to soften up the unions before less palatable changes.

Some hard questions remain. France's rigorous system suits able pupils: half of all 15-year-olds match the standards in writing, maths and science of the very best performers in the rich-country OECD. But schools fail the weakest. The bottom 15% of French 15-year-olds rank among the OECD's worst. The main cure for struggling pupils is *redoublement*, the repeat of a school year. By the age of 15, 38% of French pupils have repeated a year, more than in any other OECD country. Yet an official report suggests that *redoublement* has no noticeable effect on a child's progress.

Mr Darcos told *Le Parisien* this week that he “believed very little in the efficiency of *redoublement*”. But it is unclear what he would put in its place. He plans to trim teacher numbers. He hints at more streaming of pupils by ability, so that children can stay with their age group, but the unions are hostile. Mr Sarkozy suggests another answer: less abstract teaching, which might engage less academic pupils.

Mr Sarkozy will find it hard to translate his ambitious ideas into concrete plans. His wish-list for the curriculum is daunting: more art and sport, but also more “civic education”, comparative religion, “general culture”, trips to the theatre, walks in the forest, visits to businesses. Yet French 15-year-olds already spend an average of 1,042 hours a year in the classroom—150 more than German pupils, and 282 more than English ones.

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Women in the Netherlands

Tied to the kitchen

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Guilt, as well as lack of child care, stops Dutch women working more

A HOUSING crisis is shaking America, but some Dutch property is doing well. Churches, scouting clubs, greenhouses, empty offices, prefabricated containers—anything with a roof and running water is being feverishly sought out by schools. Since last month, in a new effort to get house-bound Dutch mothers to work, all schools have had to offer afternoon child care.

Female participation in the workforce, at 66%, is higher than the European average, but that reflects lots of part-time work. A 2006 study found that 61% of Dutch women in work are part-time; in Germany it is only 39%. Many governments have pledged to increase women's work hours, but it is hard to do. It is logical to start with schools, where classes finish by 3pm at the latest; some schools even insist on children being picked up for lunch at noon. Child care has long been scarce and costly. The new law is meant to change that.

Yet Heleen Mees, an economist and new-generation feminist, says that better child care is only one condition for getting more women to work. Another is higher female wages. That would mean narrowing a pay gap between the sexes of some 19-24%, one of the biggest in the European Union. Ms Mees also says that Dutch women lack ambition. According to the 2006 study, only 28% of Dutch urban women set themselves lofty goals, only 16% aim to reach the top, and just 10% are ready to sacrifice aspects of family life for a career. Outside the cities, women are even less ambitious. At around 30%, the Dutch have one of the lowest shares in the EU of women in top managerial and professional jobs.

Another report finds that women are influenced by social ideas of what makes a “good” mother. “The notions that mothers are supposed to stay at home and that entrusting children to strangers is wrong are still deeply rooted in Dutch society,” says Ingrid Ooms, one of the authors. Women who use child care for more than three days a week risk public and private criticism. Diabetes and cancer are laid at their door—the result, some say, of poor diets once mothers quit the kitchen. More even than new buildings for child care, maternal guilt will have to be cured if more Dutch mothers are to be lured to the office.

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Charlemagne

Overweight but underpowered

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Illustration by Phil Disley

The European Union is an economic giant with surprisingly little clout

A QUARTER of the way into a devastating new book about the European Union, one of the authors, Simon Everett, offers a comforting prediction about the EU's long-term global heft. With an economy that he says produces an annual $12 trillion (€8.8 trillion) in added value and more than 450m rich consumers, Europe will remain at the top table of world trade negotiations "for decades to come", he writes. But then comes a sharp prod. "The question, then, is to what purpose?"

It is a question that is too rarely asked. What is EU power for, notably in the economic sphere, where it is a genuine force: as marketplace, financial centre and (with America) dominant source of the standards and norms that govern the world? Is the mission to "master" globalisation, to quote a former trade commissioner, Pascal Lamy? Or is it to "shape" globalisation so that "Europeans prosper" in a "new and better global order", to quote the European Commission's president, José Manuel Barroso?

A collection of essays being published next week by a Brussels think-tank, Bruegel, constructs a careful case that the EU is a "fragmented power" in which institutions, member governments and citizens do not agree on how to exploit or defend Europe's economic strengths. This, even though history has bequeathed to Europeans a privileged status in international economic governance. Half the G8 group of rich countries come from the EU, as do nearly a quarter of the executive board members of the International Monetary Fund.

In the words of the book's editor, André Sapir, Europe's "over-representation" is "exactly mirrored" by the under-representation of emerging economies. At the same time, Europe's fragmented position causes it "to punch below its weight", writes Mr Sapir (already known in Brussels for the furore over his 2004 report, written for the European Commission, on the EU's failure to focus on growth and rational spending).

Eurocrats seem unsure whether to be cocky or anxious about Europe's position in the world. They never tire of noting that the euro is the second global currency and that the EU is the world's biggest market, largest exporter, biggest aid donor and largest foreign investor. At the same time, national governments and citizens plead for Europe to unite more and speak with a single voice on scary new challenges such as energy security, controlling migration or adjusting to China's rise. Mr Sapir and his fellow authors are also keen on unity, arguing that aggregating powers at the European level might put special interests in their place. The book calls for a new "high representative" for external economic policy, to match the real-life high representative for foreign and security policy.

Appeals for the Europeans to centralise their way out of trouble are problematic, of course. They play badly in Eurosceptical countries such as Britain. They can also seem circular: Europe needs more unity, because Europe is not united. Try asking Peter Mandelson, the trade commissioner, who (on paper) has sole authority to speak for all 27 EU members on trade. That has not stopped him being hobbled by a

French-led coalition determined to limit concessions offered on farm subsidies in the Doha round of world trade talks (which are stalled partly as a result).

There is also the tiny problem that, on economic matters, the EU does not agree what unity might be for. The new book catalogues endless philosophical gulfs. Are world trading rules an end in themselves, as some argue, answering public calls for globalisation to do less harm? Or are they tools for improving market access and the elimination of trade barriers, which will defuse hostility to globalisation by bringing jobs, growth and lower prices? And what about aid? The EU may be, cumulatively, the world's largest donor, but the Nordics hate links between aid and commercial interests whereas others blatantly use aid as an arm of trade policy, to channel money to former colonies or to scatter small sums around the globe to boost their profiles. The chunk of European aid disbursed directly by Brussels is little better, the book finds, citing the conclusion of a Swedish study that “neither recipient needs nor recipient merits” play a big role in aid allocation.

A common energy policy is similarly much talked about, but European governments do not agree whether greater competition or more national champions are the right way to make their energy markets more robust. Even assuming that the EU thrashed out a common position on energy, what would it bring to the negotiating table? The EU is a mature market, already committed to trimming its use of carbon-laden fossil fuels, notes the book. Next to China and India, its importance is shrinking.

Smaller Europe, bigger world

And that is the final problem: even if the EU could unite, a Europe that has a static or even shrinking population has far less weight in the world than it once did. This leads Mr Sapir and his co-authors to an intriguing argument in favour of more centralisation. If relative decline is inevitable, Europeans might as well consolidate what clout they have left, and get some credit for being generous to rising powers. Take the question of pooling EU seats at the IMF, to free up chairs for emerging economies. If Europeans do not budge up, bodies like the IMF may simply lose credibility. In a phrase nicely calculated to get the attention of well-lunched Eurocrats, the book suggests: “If Europe refuses to share its place at the table, it may find itself increasingly short of dining partners in consequence.”

Mr Sapir does not deny that there are different national interests within the EU. “The question to be asked is if we are even efficiently pursuing our national interests with the current system,” he says. Over-represented and underpowered, Europe “will have to move at some stage.” Adjusting gracefully to its declining importance in a new global order might give European power a purpose for years to come.

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The markets and the economy

Casting a long shadow

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Illustration by Claudio Munoz

The City's malaise will take its toll on growth

Get article background

IF THE past is another country, its financial borders can be crossed frighteningly fast. The convulsions in the world's money markets have just opened up a new landscape. Guiding the economy through this treacherous terrain is putting the navigational skills of central bankers to the test.

When the Bank of England's rate-setters met a month ago they were not short of worries, but those were at least familiar ones. The monetary-policy committee (MPC) had already raised the base rate over the past year, from 4.5% to 5.75%, in order to restrain a strong economic upturn and keep inflation at bay. Although the bank left the rate unchanged on August 2nd, the City saw this as a stay of execution before a further rise, to 6.0%, this autumn.

But when the MPC convened this week, its main concern was how to respond to the shocks of the past month. Such financial crises may appear to come from nowhere, but they have a long pedigree. First, a period of cheap money opens the door to slack and over-risky lending. After a bit, these apparent money-spinners turn sour and this instigates a general revulsion from risk. In this way the toxic trail from the bad debts that emerged in America's mortgage business with “subprime” (a euphemism for risky) borrowers has spread around the world. Money markets have closed up as banks question the creditworthiness of other financial institutions and hang on to any spare cash they have (see article).

The most obvious symptom of the malaise in Britain is the rate at which banks borrow sterling from each other for three months—an important benchmark for much lending, especially to companies. This normally stands a bit above the base rate. In recent weeks, however, the gap between the interbank rate and the base rate has widened greatly, with the three-month interbank rate rising to a nine-year high (see chart).

As a result the MPC met this week facing a fusillade of criticism from bankers, who claimed that the central bank had not done enough to restore confidence in the money markets. Unlike its American and European counterparts, the Bank of England did not take emergency steps in August to provide extra liquidity. Instead it relied on an existing arrangement which allows banks that run short of cash to borrow from it, paying a penalty of one percentage point above the base rate. This hands-off approach was inadequate, complained Bob Diamond, president of

Barclays, a bank that has drawn on the facility on two occasions (see article).

The Bank of England gave short shrift this week to such calls, saying bluntly that problems in the three-month interbank market were not rooted in a lack of central-bank liquidity. It did, however, promise on September 5th to lend additional funds, if necessary, to ensure that overnight borrowing rates stayed broadly in line with the base rate over the coming month. A day later the MPC dashed any faint hopes that the bank would rush to loosen policy when it announced that the base rate would stay unchanged at 5.75%.

This came as little surprise, since monetary conditions have already in effect tightened through the rise in the three-month interbank rate. But the decision was essentially a holding operation. The question the MPC must now answer is whether the financial malaise will infect the wider economy. If it concludes that growth is bound to suffer, then it will be prepared to lower the base rate.

The committee's starting-point is that although consumer-price inflation has fallen to 1.9%, just below the government's 2.0% target, an overstretched economy has been racing ahead. Official figures in late August confirmed initial estimates that GDP had expanded by 3.0% in the year to the second quarter. The MPC thinks that recent growth, after likely upward revisions, may turn out to be as fast as 3.5%, well above the trend rate of 2.5-2.75%.

In normal times, such rapid expansion when there is little or no spare capacity would point unambiguously to higher interest rates in order to curb demand. Projections in the bank's *Inflation Report*, published a few days after the MPC met in August, showed that the base rate needed to rise to 6.0% this autumn in order to keep inflation at the government's target in the medium term.

But these are not normal times, and the bank must assess what this means for both supply and demand. On the supply side of the economy, the City will be hit hard as deals dry up. That matters because it lies at the heart of Britain's financial and business services. This sector, worth just over a quarter of the economy, has recently been contributing about half of GDP growth.

The financial crisis is also likely to slow demand. Consumer spending looks particularly vulnerable, since households are already burdened by high debt and disposable incomes have been squeezed. People have been able to carry on spending mainly because rising house prices have increased homeowners' wealth.

Even before August, however, the housing market looked vulnerable, as higher prices and borrowing costs made homes less and less affordable. Now the pressure will intensify as the extra expense of financing loans through the money markets feeds through to mortgage rates. Furthermore, the flight from risk means that lenders will become choosier about their borrowers and more cautious about the terms on which they make loans.

The British economy will also suffer as the financial shock makes other countries slow down. The OECD said on September 5th that it was trimming this year's growth forecasts for America and the euro area. Jean-Philippe Cotis, its chief economist, gave warning that economic prospects for rich countries were “clearly less buoyant and more uncertain”.

The precise impact of the financial crisis on the economy may be hard to estimate, but its direction is not: it will reduce growth. And that, rather than the special pleading of City folk, is what will persuade the Bank of England in time to lower the base rate.

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Barclays and the Bank of England

The bank that cried fire

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From The Economist print edition

There are tough times ahead for anxious bankers

Get article background

A VISITOR to the 31st floor of Barclays' gleaming headquarters in Canary Wharf could well find himself faced with an unexpected anachronism: a 17th-century wood-panelled room complete with fireplace, translated from the bank's old head-office in the City of London. The room is a reminder to executives that they are guardians of an institution that is older than most, and a shrine to the prudence and trustworthiness the bank would like to be known for. Yet Barclays has shown neither of those qualities in recent weeks: it has committed the banking equivalent of shouting “Fire!” in a crowded theatre.

On September 2nd Bob Diamond, president of Barclays and head of Barclays Capital, its investment-banking arm, pleaded for central banks to make more money available to banks, saying that a shortage of cash was preventing them from lending to one another and gumming up the money markets (see article).

Brave is the banker who makes such a public plea in current conditions, when financial institutions are already eyeing one another suspiciously, alert to any sign of ill health. And although Barclays says that it is “awash” with money itself, its comments caused more than a few to wonder whether it was speaking out of benign concern for the functioning of the world financial system or in a desperate bid to find the cash to keep its own wheels turning.

On August 28th shares in Barclays Bank fell after the *Financial Times* said it could lose “hundreds of millions” of pounds on its exposure to structured investments. Barclays quickly retorted that at worst it would lose £75m ($151m)—a sum it could easily afford. A day later Barclays spooked the markets again when it tapped the Bank of England's emergency facility, paying a penalty rate to borrow £1.6 billion overnight to balance its books. Doing so is unusual but not unheard of—Bank of England emergency accounts have been dipped into roughly once a month by unidentified banks since they were set up in May 2006—and Barclays had a plausible enough excuse. It says it had to borrow because of technical glitches in Britain's payments system which, like a game of pass-the-parcel, left Barclays short of cash at the close of business. But the fact that this was the second time in a month that it had borrowed from the central bank was an embarrassment it could ill afford.

Barclays' problems are only the most visible of the potential skeletons that are tumbling out of bank vaults these days. Last month HBOS chose to support Grampian Funding, its specialist-financing unit, which was struggling to raise money elsewhere. Alliance & Leicester disclosed recently that it had invested more than £1.1 billion in structured-investment funds and conduits which hold, among other things, securities backed by risky mortgage loans.

Two main worries are emerging. The first is that someone, somewhere, is sitting on a huge loss in an incomprehensible structure that could cause a big bank to default on its loans. That fear is reflected in the premium that banks demand of each other for three-month loans compared with overnight loans, which is at its highest in more than 20 years. “Banks are concerned about counterparty risk,” says Jonathan Loynes of Capital Economics, a consulting firm. “No one knows who is exposed, and by how much.”

The second worry is that turmoil in the credit markets will cause a slump in British banks' earnings. Many profited handsomely from making and selling the sorts of structured-investment funds that are now collapsing as well as the complicated, hard-to-value, debt-backed securities that those funds invested in. The market for both has already dried up.

Yet until banks own up as to who has lost what—difficult, since many are struggling to value what they own—even the best-educated guesses are shots in the dark. “We're pushing around information, but nobody has any idea of what's going on,” says one large holder of bank stocks, head down in a stack of analysts' reports. “We can only hope that the Bank of England knows more, or that these banks are too

big to be allowed to fail." Which is precisely the sort of thinking that got banks into this mess in the first place.

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The Tories and education

Still learning

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From The Economist print edition

Their latest thinking on schools

David Cameron

THE Conservative Party knows all too well that education is an emotive issue in British politics—indeed, perhaps the most emotive. In May a restatement of its line on selective grammar schools—that new ones would not be created by a future Tory government, just as they had not been by the last one—provoked a fortnight of internal strife.

The report of the party's public-services policy group on September 4th is forcing the Tories to talk about education again. They will be grateful for its many sensible ideas. Setting (selecting classes by students' ability in specific subjects) is a neat compromise between the inclusive aims of comprehensive secondary schools and grammar schools' commitment to high-flying performance. There are measures to improve discipline, too.

Extra funding for pupils in failing schools, which can also be taken elsewhere, is another good idea espoused by the report's authors. “It is the state taking responsibility for failing thousands of children,” says James O'Shaughnessy, head of research at Policy Exchange, a think-tank.

Yet the report is timid in two respects. The first is its determination to build a “partnership with the professionals”: this emphasis fails to hold producers adequately to account. The authors' plans for winning teachers' trust go beyond the usual bonfire of paperwork: testing would be streamlined, the regulatory role of the schools inspectorate (Ofsted) curtailed, and a chief education and skills officer created to represent teachers within the education department. The report also rules out recruiting managers from outside the profession as head teachers, an idea proposed by PricewaterhouseCoopers, a consultancy, in January. In the distinction coined by Julian Le Grand at the London School of Economics, the policy group assumes that teachers are “knights” driven by a public-service ethos, rather than “knaves” motivated by money and prestige. The truth lies somewhere in between.

The second weakness is that although the report recognises that expanding the supply of good school places is more important than allocating existing ones, it does not come up with much to help new providers set up schools. Its main proposal to this end (allowing parents and charities to create “pioneer schools” in areas where existing schools are failing) was suggested in July by the party's social-justice policy group. And even this idea leaves it up to Ofsted to decide what constitutes a failing school. Bolder ideas are needed to open up Britain's restrictive schools system, in which local-education authorities seldom sanction the creation of new schools while there are surplus places at existing ones, however awful.

Encouragingly, there are signs that the Conservatives are willing to go further than their report. On September 2nd David Cameron, the Tory leader, praised Sweden's open-schools system. The party has also appointed Mr O'Shaughnessy, an advocate of supply-side reform in education, as its new head of overall policy.

Tories have understandably grown cautious about proposing market ideas for public services: both the schools voucher they advocated and their “patient's passport”, a voucher in health care, proved a hard sell at the last election. But if Britain is to help its educational under-achievers, school choice must play a big part.

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Parent-led schools

Adventures at the blackboard

Sep 6th 2007
From The Economist print edition

Going beyond the call of duty to get good teaching

THE transition to secondary school is hard for children at the best of times. Imagine, then, that your precious baby must make a 90-minute journey across London twice a day, just to attend a school that has space only because locals have turned up their noses and gone elsewhere. Until this autumn, that was the prospect faced by many parents in West Norwood, South London. Not any more—and they can take the credit for improving their children's lot.

On September 10th 180 of the neighbourhood's 11-year-olds will start their secondary education in the school their parents built. Not quite with their bare hands—the local council, Lambeth, renovated a disused Victorian school to house them until their permanent home is finished in 2009. But certainly with their sweat, and even the occasional tear. For The Elmgreen School is Britain's first state school to have been set up with parents—not a church, or business, or charity, or council—in the driving seat.

Parents in the rest of Britain commonly lament their poor local schools. Those in Lambeth have long had a more fundamental problem: too few secondary schools, and never mind the quality. Chronic mismanagement meant that the borough entered the new millennium at least three state secondary schools short. Compounding the problem, it was over-supplied with religious schools, which tend to admit the observant from far away in preference to godless locals.

By 2001 Lambeth council had admitted that new schools were needed. Then something unprecedented happened: its leaders decided to take seriously the clauses in successive education acts saying that it should consider suppliers other than itself. Parents had already founded an action group to press for more schools; the council let it be known that it would welcome a parent-led proposal; and a beautiful—and so far unique—relationship was born.

Since that initial leap of faith, Lambeth has become nonchalant about stepping aside and letting others run schools. In 2004 a church-sponsored academy—a state-funded independent school—opened in the borough; another, sponsored by ARK, a charity set up by a hedge-fund dealer, will join it in 2008. Other councils, by comparison, have dragged their feet, despite the fact that open bidding for permission to set up or manage new schools became compulsory in 2006.

The Elmgreen School is an example of what parents can do with a bit of official co-operation. It is not a model that many can emulate: most parents with the skills to run a mid-sized business already have their hands full. But when they hear politicians praise an anaemic model of parental involvement in education—all responsibilities and no rights—people in one corner of London can hug themselves and think that they, at least, know where parent power can lead.

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The army

Last Post in Basra

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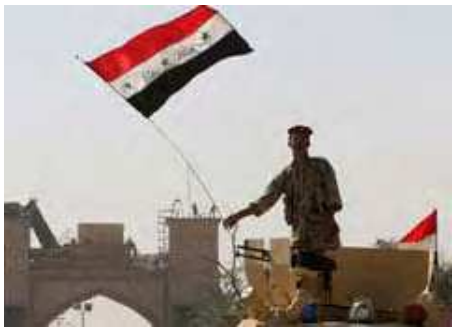
Regret and relief as British soldiers lose hope in Iraq

THE biggest success of Britain's unhappy four-year occupation of Basra was its final departure from the city. Under cover of darkness, the 500-odd men of the 4 Rifles Battlegroup rumbled out of Basra Palace in their armoured vehicles on September 2nd with hardly a shot fired or bomb detonated.

The soldiers, who had been under almost daily attack, were formally "repositioned" to the airport a few miles away. Britain would honour its "obligations" in Iraq, said Gordon Brown, the prime minister. But after losing some 170 soldiers there, the army knows it is on its way out. The question is when it will leave for good.

AP



Under new management

Mr Brown will have more to say on the subject in October. His aim will be to distance himself from the unpopular war in Iraq without undermining fatally his relationship with the Bush administration. The betting is that he will keep the current 5,000 troops in Iraq until the spring, and then draw them down to about 3,000.

Based at the airport, the troops will maintain the headquarters and logistical support for allied forces in south-eastern Iraq, as well as providing special forces to fight alongside the Americans farther north. Britain is also supposed to protect southern supply routes and maintain "overwatch" for Iraqi forces—training and armed back-up—after it hands over control of Basra province later in the autumn. In practice, though, the British have no permanent presence on so-called "Route Tampa" from Kuwait to Baghdad, and prefer to stay out of the way of American convoys. They will do everything to avoid having to shoot their way back into Basra.

Apart from defending themselves from rocket and mortar attacks at the airport, the main concern of the British army will be to preserve its public image, fending off accusations that it has failed and is betraying its allies by leaving. Britain says, with much wishful thinking, that Iraqi forces are now able to take charge of security. That contention seemed to hold this week as Basra went quiet. Lieutenant-Colonel Patrick Sanders, the commander of the 4 Rifles Battlegroup, said that 90% of the violence in Basra had been directed at the British. Senior officers wonder whether the army chief, General Sir Richard Dannatt, was right when he said last year that the British had become part of the problem.

Even if he is right, Britain seems to be at cross-purposes with America, which has increased its troops in Baghdad. The loudest American critics of Britain are the strongest advocates of the "surge", such as retired General Jack Keane. He claims American officers are frustrated by Britain's "general disengagement" from Basra. Pentagon officials say they accept with misgivings Britain's withdrawal, but worry about Mr Brown's intentions.

They are not alone. Australian and other allied forces in southern Iraq fear they may be left in the lurch. Some Australian commanders draw comparisons with the fiasco of the British-led assault (and later retreat) at Gallipoli in the first world war. They are joking, but the British army's reputation for counter-insurgency warfare has been damaged. And it was just a few years ago that British soldiers patrolling Basra in soft berets mocked the Americans for staying in their armoured vehicles.

The British console themselves with the thought that the real fault lies with America and its "intellectually bankrupt" post-war strategy, as their former army chief, General Sir Mike Jackson, calls it in a new book. And the army is still up for the fight in Afghanistan, where more troops may be sent. If that effort also ends in failure, however, the army will find it hard to shift the blame to anyone else.

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Northern Ireland's peacemakers

Swords into ploughshares

Sep 6th 2007 | BELFAST
From The Economist print edition

The IRA's message to warring factions in Iraq

Get article background

AS BRITISH troops pulled out of Basra, across the world in a forest outside Helsinki, in Finland, representatives of Iraq's warring Sunni and Shia factions finished four days of talks on how to negotiate their differences. The men who chaired the meeting knew whereof they spoke. One was Martin McGuinness, the IRA leader turned Sinn Fein politician who now runs Northern Ireland's devolved government along with his erstwhile enemy, the Rev Ian Paisley. The other was a South African: Roelf Meyer, the National Party's chief negotiator in the talks that led to the end of apartheid and a minister in the ANC government that followed.

Do such encounters really work? Many scoff at the notion that a man who lived by the sword for decades should suddenly become a sought-after authority on how to make peace. Mr McGuinness and others from Ulster, both republican and unionist, have in fact been moonlighting as peacemakers for some time. Sinn Fein is particularly keen on burnishing its credentials in the field. Its president, Gerry Adams, has tried to find a role in the Middle East by meeting Hamas, the terrorist Palestinian group. Mr McGuinness maintains contact with Basque terrorists in ETA, and last year he visited Sri Lanka twice to talk with Mahinda Rajapaksa, its president, and later the Tamil Tigers, a terrorist group. He told the Iraqis that they seemed readier for negotiations than the Sri Lankans.

If Mr McGuinness has a consistent message, it is that all parties to a conflict must sit down together to resolve it. The importance of building personal relationships and mutual respect is a truth that he himself learned from South African advisors, including Mr Meyer, as the peace process began to take shape in Northern Ireland. During get-togethers under the African sun, the ANC and the National Party were shocked to find that they could not persuade their unionist visitors to eat and drink with their republican counterparts. (Indeed, Mr Paisley has yet to shake Mr McGuinness's hand, the latter confirmed this week, but he added that “It doesn't matter at all. In the last three months not a harsh word has been spoken.”)

The Helsinki meeting was arranged by academics at the University of Massachusetts and a conflict-resolution body headed by Martti Ahtisaari, a former president of Finland and at one time a monitor supervising the decommissioning of IRA weapons. Quintin Oliver, a political consultant in Belfast who also helped arrange the encounter, reckons the breakthrough came on day three, when the Iraqis asked their mentors to leave the room.

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Criminal children

Lock up your sons and daughters

Sep 6th 2007
From The Economist print edition

Punishing children needs a deft touch. That isn't the government's strong point

Get article background

“THE untouchables” was how one newspaper described the hoodlums who were revealed on September 2nd to have committed 3,000 crimes while cunningly staying beyond the reach of the law. The secret of these sinister-sounding criminal masterminds? All were under ten years old, and immune from prosecution because of their age.

That such everyday disobedience—which amounts to fewer than ten incidents a day across the country—made front-page news is not surprising in Britain, where the bad behaviour of youngsters has become an obsession after a spate of serious teenage violence. The interest in young hooligans extends to the courts, too: last month a 12-year-old was hauled before a judge for throwing a cocktail sausage at a pensioner. Britain's jails contain a higher proportion of those under 21 than any in the European Union, bar Ireland's.

The figures on the under-tens, unearthed by the BBC, have led some to call for the age of criminal responsibility to be lowered in order to let the little monsters feel the force of the law. In fact this age is already near the bottom in Britain. Most of Europe does not prosecute offenders younger than 14 to 16, and elsewhere in the world the watershed comes as late as 18. Scotland's limit is just eight years old, but its system means that few under-16s face court anyway.

For those whose houses have been daubed with graffiti, the age for prosecution cannot be too low. But hawks should beware. “A court appearance can, in certain cases, confirm an adolescent's deviant identity both in their own eyes and those of others,” argues Rob Allen, a former member of the Youth Justice Board (YJB). Research from Edinburgh University found that children who had contact with a Children's Hearing—Scotland's version of a youth court—were three times more likely to be convicted as adults than young offenders who had not. “The deeper you get pulled into the system, the worse the outcome,” says Lesley McAra, one of the study's directors. Solving problems informally is more effective, she says.

Between the year ending in March 2003 and that ending in March 2006, the number of court cases each year involving alleged offenders under 18 swelled from 93,183 to 117,707. Most offenders are given mild community punishments (though Ms McAra says even this can encourage re-offending), but the number taken into custody has also risen, to more than 3,000 in July of this year. That is double what it was 15 years ago. Anti-Social Behaviour Orders (ASBOs) have speeded many youngsters into jail; so too have harsh guidelines on mobile-phone theft and other teenage peccadillos, Mr Allen says.

A change of management may help. Since June the new Department for Children, Schools and Families has begun to take an interest in the YJB, run until now by the Ministry of Justice (and before that, by the Home Office). Rod Morgan, a former YJB chief, is pleased: he argued earlier that the education department should take more responsibility for youth offending. But he worries that separate plans to give local councils more control over their budgets—generally a good thing—may see overall money for yob-management trimmed. “Young offenders aren't popular; no one wants them,” he laments. But everyone has them. Will councils use their budgets better than Whitehall?

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The London Underground

Out of action

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London's latest tube strike is unlikely to be its last

Get article background

GETTING around Britain's crowded capital is a trial even when public transport is working properly. It got worse on the evening of September 3rd, when about 2,300 maintenance workers from the National Union of Rail, Maritime and Transport Workers (RMT) walked out in a dispute over job and pension guarantees. With no one to repair the rails and signals, Transport for London (TfL), which runs the network, was forced to close nine of the Tube's 12 lines.

Chaos ensued. Buses and the remaining Tube trains were jam-packed. Roads were clogged with private cars, even though Ken Livingstone, London's mayor, refused to suspend the city's congestion-charging scheme. Bicycles were dragged out of sheds; those who lived close enough walked sweatily to work. Many simply abandoned the daily commute entirely to enjoy the autumn sunshine and perhaps do a bit of work from home.

The stoppage was originally supposed to last three days, but in the event services resumed after a late-night deal on September 4th. As *The Economist* went to press a second three-day strike, scheduled to begin on September 10th, was still planned.

The proximate cause for the strikes is the failure in July of Metronet, one of the two private-sector firms contracted in 2003 to upgrade the system. Metronet is now in administration and new bidders for its contracts are being sought. The RMT (which insists on referring to Metronet as a “privateer”) wanted guarantees that pensions would be protected and no jobs lost once Metronet's contracts were transferred to new owners. The administrator pointed out that such assurances were not in his gift. Eventually, the RMT agreed to call off the first strike after being promised that pensions would be safeguarded and redundancies handled just as before—exactly what managers maintain that they had been offering all along.

The ultimate cause is simply that the RMT is powerful whereas government is weak. The union has the power to cause massive disruption in Britain's capital and is not afraid to exploit it. The RMT threatens to walk out on most New Year's Eves and its industrial disputes are frequent enough to have inspired a profane popular song. But with London so dependent on public transport, politicians and managers have little option but to cut deals.

Militancy has brought rewards for Bob Crow, the union's leader, as well as for his members. Thanks in part to his well-publicised intransigence, Tube drivers receive juicy pay, leave and pensions for performing a moderately skilled blue-collar job, and the RMT claims to be the fastest-growing union in Britain.

A strike-happy workforce is unlikely to encourage other companies to bid for Metronet's contracts, which may work further to the union's advantage. It has long campaigned to have the upgrade work, at least, returned to the public sector—and TfL is, so far, the only outfit to have expressed any interest in picking up the tools Metronet downed.

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The World Bank

That empty-nest feeling

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The World Bank

The World Bank, founded to fight poverty, is searching for the right role in places that need its help less and less

A TYPICAL bank will do its very best to retain customers who are relatively mature and reliable. Whenever it deals with these favoured clients, it will try to offer a personalised service, devise innovative products and keep rival lenders away.

The World Bank is certainly not a typical bank, but in this respect it follows the norm. It relishes dealing with its “best” customers: the middle-income countries (MICs), a group whose GDP per head typically ranges from about $1,000 to $6,000. In general, these countries have the decent habit of repaying loans and showing results in their efforts to reduce poverty, which is the bank's main job. Bank-supported projects in middle-income countries—like dams in the Philippines (see the picture above)—can plausibly be presented as contributions to a broader story of success.

Pleasant and rewarding as this MIC business may be, is it doing anything useful that could not be done just as well by others? And if not, is there anything else the bank should be doing? That was the question asked by the Independent Evaluation Group, an in-house monitor, which this week issued a report on the bank's work in the MICs over the past decade.

The MICs are not simply the best but also the biggest customers of the World Bank—accounting for 63% of its loans and over half of its administrative budget. But the trouble with promising protégés is that one day they no longer need you. The MICs are now heading for the exit: over the past 12 years, they have repaid an annual average of $3.8 billion more than they have taken out in new loans. Financing from the multilateral lender accounted for just 0.6% of the MICs' national investment in 2005, down from twice that in 1995.

There are several factors at work here, mostly benign. The MICs are growing faster than either the poorest or the richest states. Five countries have “graduated” from the bank in the past ten years (while several, notably China, have joined the middle-income group). But most crucially for the bank's future, the MICs have started doing a better job at nursing their own balance sheets. This means they can raise capital from private lenders: 31% of the bank's middle-income lending now goes to countries with investment-grade credit ratings. A further 62% goes to countries with credit ratings below investment grade. Just 7% of MIC lending goes to countries with no credit rating and virtually no access to private capital at all.

Naturally, the MICs now turn to private lenders, who do not tie money to advice. The World Bank claims that the best thing it lends is its expertise. But many governments feel they know best; it is hard to

make them put up with the advisers who come with “soft” loans, unless the other terms are very attractive.

Nancy Birdsall of the Centre for Global Development, a think-tank in Washington, DC, favours decoupling advice and loans. Some countries (presumably those deemed sensible enough not to need any counsel) would take loans but no advice. Others (like China, with plenty of finance) could take just the advice. By offering a more clearly differentiated range of products, the World Bank could improve the quality of its services to MICs.

An interesting idea, and perhaps one way of easing the identity crisis which looms over the bank as it deals with middling countries. It has devoted three strategy papers in six years to this topic, without dispelling the impression that it is still searching for a clear aim. When the bank was founded, it really was the only source of capital for many poor countries. It is only slowly adapting to a world in which it is one player among many.

In carrying out the institution's core missions—boosting economic growth and reducing poverty—the bank's work in the MICs has been moderately successful, the new evaluation finds. Isn't that good enough? In an earnest quest for relevance, the report's authors name three areas where the bank could do better: corruption, inequality and the environment. In these areas, most borrowers—whatever their view may be worth—saw the bank's work as mildly unsatisfactory or worse.

Nobody calls these issues trivial—but they are also among the hardest to deal with. Battling corruption takes generations. In poor African countries, where the bank and other donors sometimes supply a third or half of the government's revenues, aid-givers cannot avoid being political; they can bankroll or bankrupt ill-governed regimes. But in a country such as Brazil or China, the bank's clout is trifling. At best, it can have influence through advocacy and example. Its measures of corruption, for example, inveigle their way into the political debate in many of its client countries. But if it becomes too intrusive, the borrower will walk away.

In the end, there may be little the bank can do to clean up governance in a large, powerful country, such as India. The best it can manage is to ensure that its own people and projects are above suspicion—as it has been trying to do. Before he was forced out as bank president last May, amid controversy over some professional help he gave his girlfriend, Paul Wolfowitz attempted to beef up the institution's internal-investigations unit. But the unit failed to win the trust of some of the bank's employees. Mr Wolfowitz duly picked Paul Volcker, an ex-chairman of the Federal Reserve, to investigate the investigators; Mr Volcker's report is due out soon.

Inequality is another front on which the bank is ill-equipped to fight. The new evaluation says more than half its middle-income borrowers have become more unequal over the decade under review. But the bank might do more harm than good if it shifted focus from absolute poverty to relative deprivation. When the rich get richer, is that the bank's business?

Finally, the bank's environmental role has long been close to its heart. But it can be argued that positively promoting greenery is not a central task for the institution; it already tries to avoid projects that harm the ecosystem. If it insists on an activist role, it will run up against MICs that take a different view of the trade-off between greenery and growth, and hence borrow elsewhere.

What of the bank's own books, if it should lose its returns from its lending to the MICs? The bank claims that this profit-making activity helps it to dole out money to the poorest countries. But Adam Lerrick of the American Enterprise Institute, a conservative think-tank, calls the bank's “profit” from lending a fiction. He says this income is really the return on cost-free capital that belongs to its shareholders; the bank should invest these funds in the capital markets and use the income on projects in the poorest countries, instead of lending it to governments that don't need it.

Arguably, the bank should be proud of old pupils who have achieved growth, repaid debt and attracted private financing. Of course, if credit markets now tighten, then Robert Zoellick, the bank's president, may be proved right when he insists that MICs will need the bank for a while longer. But whatever happens, setting unrealistic new aspirations is probably not the best way to remain in business.

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Cybersecurity

Beware the Trojan panda

Sep 6th 2007
From The Economist print edition

Alarm grows over China's apparent capacity to wreak havoc in cyberspace

THE West's military and government computers are attacked every millisecond. America's State Department, for one, says its networks are probed about 2m times a day. The culprits may be computer geeks, vandals or bored teenagers. Of late, though, some of the most bold, even brazen, attacks are being blamed on the Chinese authorities.

Last May Chinese spy software was discovered in computers in the office of the German chancellor, Angela Merkel, and other ministries. According to one report the so-called Trojan Horse programme (attached to a seemingly innocuous electronic file) was siphoning off 160 gigabytes of information when it was stopped. German officials suspect that China's People's Liberation Army (PLA) was responsible.

This week it emerged that a similar Trojan Horse penetrated computers in the office of America's defence secretary, Robert Gates, in June. The Pentagon says only an “unclassified” e-mail system was breached, and has not identified the suspects. Pentagon officials, though, are convinced the PLA was behind the attack.

In response to German criticism, the Chinese authorities last month promised, unusually, to fight the common scourge of hackers. This week, however, China's foreign ministry denied any involvement in the cyberattack on the Pentagon. Any claim to the contrary, it said, was the product of “a cold war mentality”.

America's military planners worry that China is using cyberspace not just for espionage but to prepare a future hot war, say over Taiwan. A recent Pentagon report said Chinese military exercises include launching a “first strike” attack on enemy computers, presumably to cripple America's highly networked military operations or, worse, disrupt civilian life there.

Achieving “electromagnetic dominance” early in a conflict, says the report, is seen by the PLA as an important means by which the weaker Chinese forces could defeat the stronger American ones. Other “asymmetric” means would include trying to cripple America's military and communications satellites, as demonstrated last January with a missile test that blasted an old Chinese weather satellite.

General James Cartwright, recently promoted from head of Strategic Command to vice-chairman of the joint chiefs of staff, said in June that China was carrying out widespread “reconnaissance” of America's networks. This allowed China to steal advanced know-how, so as to skip generations in military and civil technology. A cyberspy can potentially steal much more information than a human one. Others argue that China wants to send a signal to America that a future war would be costly, and would not be limited to the Straits of Taiwan.

The Pentagon is probably better able to protect itself against cyberattacks than most. But in an increasingly internet-connected world, civilian life has become more vulnerable. Earlier this year suspected Russian hackers attacked the websites of ministries, banks and other bodies in Estonia, the tiny but highly-wired Baltic state that had offended the Kremlin by removing a Soviet war monument from the centre of the capital, Tallinn, to a military cemetery. The “denial of service” attack was crude, but disruptive.

Past American exercises to test the computer defences of critical services (such as electricity grids) have found that, without detailed inside information, an external cyberattack would be more disruptive than catastrophic. That assessment may be changing. The psychological effect of a cyberattack on America, in General Cartwright's view, could be as severe as the use of weapons of mass destruction.

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A new old idea

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Telecommunications: The idea of sending information through the air in the form of flashes of light is being given a high-tech makeover

Alamy

WHEN most people switch on a desk lamp, they usually want a little extra illumination. But not John Goodey, an engineering student at Oxford University. When he flicks the switch and turns on his lamp, a sensor on his desk downloads music tracks digitally encoded within tiny flickers in the lamp's light. The music is then relayed through a pair of nearby speakers. This unusual set-up offers a glimpse of a future in which light, rather than radio waves, is used to send information. The concept, known as optical wireless or free-space optics (FSO), promises better security and higher data-transfer rates (up to 10 gigabits per second) than existing radio-based communications technologies, says Dominic O'Brien, a leading engineer in the field and Mr Goodey's research supervisor at Oxford.

FSO is already used in a few niches: to connect networks in nearby offices without having to string cables between them, for example. But plans are afoot to extend the idea into a number of new areas. For example, the subtle flickering of car headlights and tail-lights could be used to transmit speed and braking information to other vehicles, to help prevent collisions. Traffic lights could alert cars when they are about to change, or broadcast the latest congestion update to waiting vehicles. In the home, FSO could be used together with interior lighting to provide extremely fast internet downloads. Since light does not travel through walls, there would be no need to worry about neighbours snooping on your e-mail, or piggybacking on your broadband connection.

Futuristic though this sounds, FSO is by no means a new idea. Soldiers in ancient Greece used polished shields to send battle orders to each other over vast distances in the form of flashes of sunlight. More recently, so-called “heliographs” have been used to relay military signals in a similar way. And it is only in the past ten years that the British navy has phased out its use of Aldis lamps to convey Morse code signals from ship to ship. Yet just as this old analogue technology was being retired, its new digital counterpart was making its debut. In the past few years a small number of companies, such as Terabeam, LightPointe and Cablefree Solutions, began offering businesses point-to-point optical systems that could send data between buildings.

These early optical systems were capable of sending information at a rate of hundreds of megabits per second (Mbps), but customers usually wanted only about 10Mbps, says Stephen Patrick of Cablefree. Back then the attraction was not speed but convenience, he says. Advocates of FSO like to say it has the speed of a fibre-optic link, and the convenience of a wireless link. It is easy to set up: simply hook up infra-red laser transceivers on top of two buildings and then align them. “The cost to install is very low,” says Mr Patrick.

There is no messing about with radio-spectrum licences or digging up roads, and FSO can also bypass prohibitive planning restrictions. In places where transmitters are not allowed on roofs, for example, indoor FSO transceivers can simply send and receive data through closed windows. FSO is also secure: the only way to intercept the signal is physically to intercept the beam.

As a result, hundreds of businesses, hospitals and universities are already using FSO. City skylines are not criss-crossed with grids of laser beams because it is all done using invisible infra-red light, says Mr O'Brien. Today's technology can transmit data up to 4km (2.5 miles) at speeds of 1-3 gigabits per second (Gbps).

Telecoms operators are starting to take an interest in the technology as an alternative to the microwave-radio “backhaul” links that are used to link mobile-phone base-stations to operators' core networks. FSO's main drawback is that bad weather, such as rain or fog, can interrupt the signal. But Mr Patrick notes that microwave links are also prone to atmospheric interference. Provided FSO is set up over relatively short distances—say several hundred metres—it is a reliable technology, he says.

There is no need to worry about bad weather when using FSO indoors, of course. But maintaining a line of sight can be a problem for a laptop that is being carried around within a home or office. One solution is to use a diffuse light source rather than a laser beam, says Mr O'Brien. Using the natural reflectivity of ceilings and walls, a transmitted infra-red signal can be received by any number of receivers within a room. But this approach reduces the pace at which information can be transferred. “Most of the light doesn't go where you want it to,” says Mr O'Brien. Nor is it possible simply to crank up the power of the source beam, because infra-red light at high intensity can cause eye damage.

So Mr O'Brien has been working on a ceiling-based system that tracks where a receiving device is, and then sends it a signal using several laser beams from a directional transmitter. He has built a prototype that runs at 300Mbps, nearly six times faster than today's typical Wi-Fi links and reckons that speeds of up to 10 Gbps are feasible. That is not to say that Wi-Fi is obsolete. Instead, the two technologies may end up being used together: Wi-Fi as the uplink, and FSO for the much faster downlink.

The long-term hope is to transmit data using visible light emitted by indoor lighting. In Japan the Visible Light Communications Consortium, made up of industrial giants such as Sony, Toshiba and NEC, is pursuing just that goal. FSO is not possible with existing indoor lighting because incandescent bulbs cannot switch on and off fast enough. But that is not a problem for white light-emitting diodes (LEDs), which are expected to become far more widespread in the coming years, because they use less energy and are more versatile than incandescent bulbs. The combination of LEDs and FSOcould then be used to provide internet coverage throughout a home or office. Could it be lights out for radio networking?

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Everlasting light

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Energy: Researchers have developed an environmentally friendly light bulb that uses very little energy and should never need changing

Belle Mellor

ALTHOUGH it symbolises a bright idea, the traditional incandescent light bulb is a dud. It wastes huge amounts of electricity, radiating 95% of the energy it consumes as heat rather than light. Its life is also relatively short, culminating in a dull pop as its filament fractures. Now a team of researchers has devised a light bulb that is not only much more energy-efficient—it is also expected to last longer than the devices into which it is inserted. Moreover, the lamp could be used for rear-projection televisions as well as general illumination.

The trick to a longer life, for light bulbs at least, is to ensure that the lamp has no electrodes. Although electrodes are undeniably convenient for plugging bulbs directly into the lighting system, they are also the main reason why lamps fail. The electrodes wear out. They can react chemically with the gas inside the light bulb, making it grow dimmer. They are also difficult to seal into the structure of the bulb, making the rupture of these seals another potential source of failure.

Scientists working for Ceravision, a company based in Milton Keynes, in Britain, have designed a new form of lamp that eliminates the need for electrodes. Their device uses microwaves to transform electricity into light. It consists of a relatively small lump of aluminium oxide into which a hole has been bored. When the aluminium oxide is bombarded with microwaves generated from the same sort of device that powers a microwave oven, a concentrated electric field is created inside the void.

If a cylindrical capsule containing a suitable gas is inserted into the hole, the atoms of the gas become ionised. As electrons accelerate in the electric field, they gain energy that they pass on to the atoms and molecules of the gas as they collide with them, creating a glowing plasma. The resulting light is bright, and the process is energy-efficient. Indeed, whereas traditional light bulbs emit just 5% of their energy as light, and fluorescent tubes about 15%, the Ceravision lamp has an efficiency greater than 50%.

Because the lamp has no filament, the scientists who developed it think it will last for thousands of hours of use—in other words, for decades. Moreover, the light it generates comes from what is almost a single point, which means that the bulbs can be used in projectors and televisions. Because of this, the light is much more directional and the lamp could thus prove more efficient than bulbs that scatter light in all directions. Its long life would make the new light ideal for buildings in which the architecture makes changing light bulbs complicated and expensive. The lamps' small size makes them comparable to light-emitting diodes but the new lamp generates much brighter light than those semiconductor devices do. A single microwave generator can be used to power several lamps.

Another environmental advantage of the new design is that it does not need mercury, a highly toxic metal found in most of the bulbs used today, including energy-saving fluorescent bulbs, fluorescent tubes and the high-pressure bulbs used in projectors. And Ceravision also reckons it should be cheap to make. With lighting accounting for some 20% of electricity use worldwide, switching to a more efficient system could both save energy and reduce emissions of climate-changing greenhouse gases.

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Old clean coal

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Energy: Using photosynthesis to capture exhaust gases from power plants could reduce the emissions produced by coal-fired stations

FOR its supporters, the idea of growing single-celled algae on exhaust gas piped from power stations is the ultimate in recycling. For its detractors, it is a mere pipe dream. Whoever turns out to be right, though, it is an intriguing idea: instead of releasing the carbon dioxide produced by burning fossil fuels into the atmosphere, why not recapture it by photosynthesis? The result could then be turned into biodiesel (since many species of algae store their food reserves as oil), or even simply dried and fed back into the power station. Of course, if it were really that easy, someone would have done it already. But although no one has yet commercialised the technology, several groups are trying.

One of them is GS CleanTech, which has developed a bioreactor based on a patent held by a group of scientists at the Ohio Coal Research Centre, at the University of Ohio. The GS CleanTech bioreactor uses a parabolic mirror to funnel sunlight into fibre-optic cables that carry the light to acrylic “glow plates” inside the reactor. These diffuse the light over vertical sheets of polyester that form the platform on which the algae grow. Eventually the polyester is unable to support the weight of the algae, and they fall off into a collection duct positioned underneath.

GreenFuel Technologies, based in Cambridge, Massachusetts, has a different approach. Its reactor is composed of a series of clear tubes, each with a second, opaque tube nested inside. This arrangement makes it possible to bubble the exhaust gas down through the outer compartment and then bubble it back up through the opaque middle. The bubbling gas causes turbulence and circulates the algae around the reactor. The constant shift between light and darkness as the algal cells circulate increases the amount of carbon that they fix, probably by promoting chemical reactions that occur naturally only at night.

A preliminary test of GreenFuel's reactor design, which was performed at the Massachusetts Institute of Technology's campus power plant, suggested that it can remove 75% of the carbon dioxide from a power station's exhaust. A more serious test is now being carried out by Arizona Public Service, that state's power utility, at its Redhawk plant. Another test is planned in Louisiana.

GreenFuel claims that over the course of a year, a hectare (2.5 acres) of its reactors should be able to produce 30,000 litres (8,000 American gallons) of oil, which could be used as biodiesel, and enough carbohydrates to be fermented into 9,000 litres of ethanol, which can be used as a substitute for petrol.

There is, of course, no free lunch. As Rob Carlson of the University of Washington points out, if money is to be made selling products made from exhaust gas, then that gas goes from being waste matter to being a valuable resource. Far from giving it away, power companies might even start charging for it. That would, indeed, be a reversal of fortune.

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Sea change

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From The Economist print edition

Offshore technology: Rising costs and clever kit are transforming the oil platform—and could even do away with it altogether

FROM the helipad on top of the Alwyn North oil and gas platform, the horizon looks crowded. The massive structure stands in the middle of the North Sea, miles from land, but it is far from isolated. Another 20-odd platforms are visible, plus several drilling rigs, not to mention all the ships and helicopters carting staff and supplies around. Waters that look featureless and deserted on the map turn out to be littered with teeming settlements.

Alamy

An endangered species?

All this activity comes at tremendous cost. Total, the oil giant that owns Alwyn North, spent £1.5 billion ($2.4 billion) to build it back in the mid-1980s. It has since spent around £700m on improvements, and plans to spend £150m more. And Alwyn North is just one of 435 platforms in the British portion of the North Sea.

Then there are running costs. Up to 300 people live on the platform at a time, but keeping it fully manned involves more than twice that figure, since most staff get three weeks off for every two that they work. Simply flying them all from Aberdeen to the platform costs about £1,000 per person per trip. (Aberdeen boasts the world's busiest civilian heliport, thanks to all the offshore traffic.) Food and other supplies are brought in by boat. Another vessel is kept on standby near the platform all the time, in case of emergency. Generators and desalinators run around the clock to provide power and drinking water.

According to Oil and Gas UK, an industry group, oil firms spent over £11 billion last year building and running offshore facilities in British waters. That puts production costs, at $22 per barrel, among the highest in the world. And they are rising rapidly. Deutsche Bank estimates that inflation in the oil business has run at 30% a year over the past two years, and will continue to rise by at least 15% a year this year and next.

No wonder, then, that firms are determined to reduce the expense of producing oil at sea, in the North Sea and elsewhere. One of the simplest ways to cut costs is to minimise the number of people working on platforms and increase their productivity with the help of modern communications. Alwyn North is connected to the mainland by fibre-optic cable. That allows geologists onshore to analyse data from drilling as it occurs, suggest adjustments and design future drilling plans without ever leaving their offices. It also provides continuity between shifts: Jon Starkebye of IBM, a computer giant that provides services to oil companies, notes that a platform's output can fall by as much as 7% during hand-overs between different teams.

With access to more powerful computers onshore, firms can crunch more numbers and so model more

accurately what is going on in their fields. That allows them to anticipate and pre-empt the intrusion of water into their wells, say, or the failure of equipment. Such techniques have enabled Statoil, a Norwegian oil firm, to stretch out the period between shutdowns for repairs at one field from 750 hours to 4,000, and to reduce the annual hours of engineering work at another from 20,000 to 6,000.

These efficiencies, in turn, permit much smaller crews: whereas a typical older platform needed 100 workers, new ones can make do with as few as 29, says Adolfo Henriquez, who is in charge of disseminating such “integrated operations” through the firm. Adopting similar techniques at all of Norway's offshore fields would yield an extra 250 billion Norwegian kroner ($43.6 billion) in revenues, according to a study published last year by the local oil-industry association.

Another way for firms operating offshore to economise is by developing multiple fields from a single platform. Oil platforms used to stand directly above the fields they drilled, as Alwyn North does over the oil and gas deposits of the same name. But Total has since discovered several other pockets of hydrocarbons nearby. The closest ones can be tapped from the platform, since it is now possible to drill sideways as well as up and down: a total of 20 wells snake out from Alwyn North in different directions. Earlier this year, Exxon Mobil broke the record for this sort of long-distance drilling with a well over 11km (7 miles) long.

Even more distant fields can be “tied back” to a platform using pipelines along the sea floor. In a tie-back, the valves that open and close the well are located not on the rig, but on the sea floor; engineers operate them by remote control. Several deposits of oil and gas, including Nuggets, a cluster of gas fields over 40km away, are linked to Alwyn North in this way. Next, Total plans to connect a new discovery called Jura to the platform. As a result the lifespan of Alwyn North, estimated at 10 years when it first started production in 1987, has been extended to over 40 years, while its projected output has almost quadrupled.

The next logical step is to put more equipment underwater, in the hope of dispensing with platforms altogether. Statoil, for example, is tapping a gas field called Snohvit, which lies 143km offshore, without using a platform. But this is possible only because the pressure of the field is strong enough to keep the gas flowing through the long pipeline back to shore. Norsk Hydro, another Norwegian energy firm on the verge of merging with Statoil, has developed another gas field, Ormen Lange, in the same way. But in a few years a compressor that can work underwater will be needed to supplement the falling pressure in the field. Last year, Norsk Hydro hired General Electric (GE), an American industrial giant, to build a prototype. “Fifteen years from now,” says Claudi Santiago of GE, “the vision is that offshore platforms will disappear.”

Or maybe not. If some way can be found to liquefy gas offshore, Mr Santiago points out, then deposits that are currently too remote for the construction of pipelines could be developed, and the gas transported in liquid form by ship instead. That would give offshore platforms a whole new lease on life.

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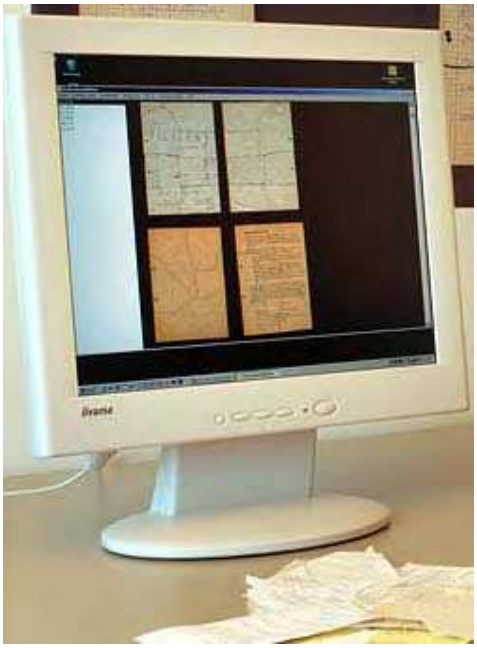
Piecing history together

Sep 6th 2007
From The Economist print edition

Computing: The German Democratic Republic bequeathed a 600m-piece puzzle to the reunified country. It is about to be solved using software

Fraunhofer



Look, an edge piece!

WHEN the shredding machines failed and the mob was at the gates, the spooks at East Germany's State Security Service, better known as the Stasi, tried turning their files into mush by dunking them in water. But the number of bathtubs in their headquarters in Normannenstrasse was as unequal to the task as the machines had been. In the end, they resorted to tearing each page up by hand. The fact that many of the resulting shreds are only a few millimetres across is testament to just how much the soon-to-be-ex-members of the intelligence service did not want their work to fall into the public domain.

If Bertram Nickolay of the Fraunhofer Institute for Production Systems and Design Technology, in Berlin, has his way, however, the public domain is exactly where they will soon end up. Using the institute's expertise in pattern-matching technology, he and his colleagues are about to embark on one of the biggest jigsaw puzzles of all time—or, rather, 45m of them. For that is the number of pages which the 600m fragments of paper, stored in more than 16,000 bags that were recovered from Normannenstrasse, are thought to represent.

At first glance the task of joining that many shreds looks impossible, even when each shred has been scanned so that the matching can be done by machine. The secret, as with any computing task, is to break the problem into smaller, more manageable chunks. The first stage of this breakdown was done, unwittingly, by the Stasi themselves. Since they were in a hurry, the shredders tended to stuff all the bits of a given document into a single bag. That greatly simplifies the problem, so that rather than being nearly impossible it becomes merely unwieldy.

The next stage is to group the shreds from a single bag according to various criteria. These include the colour and texture of the paper each shred is made from, whether that paper is lined or not, the colour of the ink used, whether that ink represents a picture, a piece of typewritten text or a piece of handwriting, and—if it is handwriting—what style.

Only when a group of related shreds has been found using these criteria does the actual puzzling begin. That is done the way human puzzlers do it, by paying attention to shapes and sizes of the pieces, and the contours of their edges. If two shreds can be connected, they are regarded as one larger shred, and are thrown back into the heap of images to be analysed and compared with the others. Thus, as with a real jigsaw, areas get progressively filled in until the whole picture is finally complete.

Like a human, the program that does the puzzling is capable of learning. It spawns slightly altered versions of itself that compete for computer time on the basis of their success at finding matches. The most successful are then mutated again, in a process similar to biological evolution. This is necessary because unlike a real jigsaw or a machine-shredded document, in which the pieces fit perfectly, the shreds of a torn document are slightly distorted and frayed at the edges. Deciding what matches what therefore requires judgment, which is notoriously difficult to program in advance. Indeed, if the program really cannot make up its mind whether two shreds match or not, it refers the matter to a human operator.

Dr Nickolay is planning to process about 400 bags over the course of the next two years as a final test of the technology. If that works, it will just be a question of adding more scanners and computers to expose the truth about East Germany's dark past.

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What is this that roareth thus?

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Transport: The untold story of a failed attempt to introduce electric buses in London a century ago offers a cautionary technological tale

ON MONDAY July 15th 1907 an unusual bus picked up its first passengers at London's Victoria Station before gliding smoothly off to Liverpool Street. It was the beginning of what was then the world's biggest trial of battery-powered buses. The London Electrobus Company had high hopes that this quiet and fume-free form of transport would replace the horse. At its peak, the firm had a fleet of 20 buses. But despite being popular with passengers the service collapsed in 1909. The history books imply that the collapse was caused by technical drawbacks and a price war. It was not. The untold story is that the collapse was caused by systematic fraud that set back the cause of battery buses by a hundred years.

Hulton Archive

Can it be a motor bus?

Indeed, the London electrobus trial remained the largest for the rest of the 20th century. Only recently has American interest in keeping city air clean encouraged trials on anything approaching the same scale. For the past 15 years Chattanooga has had a dozen battery buses. Today the world's biggest fleet, excluding minibuses, is in Santa Barbara, California. The city has 20 buses and is buying five more.

The replacement of horses by internal-combustion engines may now look to have been inevitable, but it certainly did not seem so at the time. At the beginning of 1906 there were only 230 motor buses in London. They were widely reviled for their evil smells and noise. At any one time a quarter of them were off the road for repairs. In 1907 *The Economist* predicted “the triumph of the horse”. The future of public-transport technology was up for grabs.

The paradox at the heart of the electrobus story is that the electrobuses themselves were well engineered and well managed. All battery buses have a limited range because of the weight of their batteries. The electrobus needed 1.5 tonnes of lead-acid batteries to carry its 34 passengers. It could travel 60km (38 miles) on one charge. So at lunchtime the buses went to a garage in Victoria and drove up a ramp. The batteries, slung under the electrobus, were lowered onto a trolley and replaced with fresh ones. It all took three minutes. “It just goes to show there's nothing new under the sun,” says Mark Hairr, of the Advanced Transportation Technology Institute. “That's almost exactly what we do here in Chattanooga. And we knew nothing about this.”

In April 1906 the London Electrobus Company floated on the stockmarket. It wanted £300,000 to put 300 buses on the streets of the capital. On the first day the flotation raised £120,000 and the share offer was on course to be fully subscribed. But the next day some awkward questions surfaced. The firm was buying rights to a patent for £20,000 (£7.5m, or $15m, in today's money) from the Baron de Martigny.

But the patent was old and had nothing to do with battery buses. It was a scam. Investors asked for their money back, and the firm had to return £80,000. The investors would have been even less impressed had they known the true identity of the “Baron”, who was a Canadian music-hall artist.

Martigny was only the front man. The mastermind behind this and a clutch of subsequent scams was Edward Lehwess, a German lawyer and serial con-artist with a taste for fast cars and expensive champagne. After this initial fiasco the London Electrobus Company struggled to raise money. But Lehwess had set up a network of front companies to siphon off its funds. Chief among these was the Electric Vehicle Company of West Norwood, which built the buses.

The London Electrobus Company paid the Electric Vehicle Company over £31,000 in advance for 50 buses. Only 20 were ever delivered. The buses were hugely overpriced. Eventually the London Electrobus Company went into liquidation. Even then the scams continued. Lehwess bought eight buses for £800 from the liquidators and sold them to Brighton for £3,500—a mark-up of 340%—where they ran for another six years. At the time, the life of a motor bus was measured in months.

Whether the fraud was truly a tipping point for electric vehicles is, of course, impossible to say. But it is a commonplace of innovation—from railway gauges to semiconductors to software—that the “best” technology is not always the most successful. Once an industry standard has been established, it is hard to displace. If Lehwess and Martigny had not pulled their scam when they did, modern cities might be an awful lot cleaner.

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A plane that thinks it's a boat

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From The Economist print edition

Transport: After a long gestation, ground-effect vehicles that fly on cushions of air could finally be ready for take-off

WALK along the River Warnow, in northern Germany, and you may be lucky enough to spot a SeaFalcon, a sleek, white machine with two propellers, two wings and a distinctly un-birdlike tail. It looks like an aircraft. Which is what it is. Except, it isn't. It is a ship—at least in the eyes of the International Marine Organisation, which regulates such things. That matters, because ships are much more lightly regulated than aircraft.

The SeaFalcon is really a ground-effect vehicle. It flies only over water and only two metres above that water. This means the air beneath its wings is compressed, giving it additional lift. In effect, it is floating on a cushion of air. That makes it far cheaper to run than a plane of equivalent size, while the fact that it is flying means it is far faster—at 80-100 knots—than a ship of any size. Its designer, Dieter Puls, thus hopes it will fill a niche for the rapid transport of people and light goods in parts of the world where land and sea exist in similar proportions.

The theory of ground-effect vehicles goes back to the 1920s, when Carl Wieselsberger, a German physicist, described how the ground effect works. There was then a period of silence, followed by a false start. In the 1960s the Soviet armed forces thought that ground-effect vehicles would be ideal for shifting heavy kit around places like the Black Sea. Their prototypes did fly, but were never deployed in earnest—and their jet engines consumed huge amounts of fuel.

This did, however, prove that the idea worked. And two German engineers, Mr Puls and Hanno Fischer (whose version is called Airfish 8), have taken it up and made it work by using modern, composite materials for the airframes, and propellers rather than jets for propulsion. One reason the Soviet design was so thirsty is that the power needed to lift a ground-effect vehicle is far greater than that needed to sustain it in level flight. The Soviet design used heavy jet engines to deliver the power needed for take-off. But the SeaFalcon uses a hydrofoil to lift itself out of the water, and Airfish 8 uses what Mr Fischer calls a hoverwing—a system of pipes that takes air which has passed through the propeller and blasts it out under the craft during take-off.

The next stage, of course, is to begin production in earnest—and that seems to be about to happen. Mr Puls says he has signed a deal with an Indonesian firm for an initial order of ten, while both he and Mr Fischer are in discussions with Wigetworks, a Singaporean company, with a view to starting production next year. South-East Asia, with its plethora of islands and high rate of economic growth is just the sort of place where ground-effect vehicles should do well.

All of which sounds optimistic. But a note of caution is needed. For another sort of ground-effect vehicle was also expected to do well and ended up going nowhere. The hovercraft differed from the vehicles designed by Messrs Puls and Fischer in that it relied on creating its own cushion of air, rather than having one provided naturally. That meant it could go on land as well as sea—which was thought at the time (the 1950s) to be a winning combination. Sadly, it was not. Hovercraft have almost disappeared. But then, in the eyes of the regulators, they counted as aircraft.

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A car that runs on water

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Illustrations

Transport: Would you pay $85,000 for a car you could take into the ocean?

IS IT an aquatic car or a terrestrial boat? The Aquada, a three-seater vehicle with wheels that fold up, James Bond-style, is due to go into production in 2008 and will sell for around $85,000, according to its maker, Gibbs Technologies. In 2004 an early prototype, piloted by Richard Branson, a British entrepreneur, became the fastest amphibious vehicle ever to cross the English Channel. Powered by a V-6 engine, the Aquada is capable of 175kph (110mph) on land and 50kph on water. The company's founder and president, Alan Gibbs, wanted to be able to drive onto the beach in front of his home in New Zealand, which is often inaccessible because of high tides. But Gibbs Technologies' chief executive, Neil Jenkins, reckons the Aquada will appeal to a broad range of buyers, including urbanites in London or New York, who could use the amphibious craft to circumvent traffic-clogged roads.The Aquada will be built in America, and several states are vying to attract the plant. “Personally, I'd like to do it in Detroit,” says Mr Gibbs. He hopes to employ 1,500 workers and produce 100,000 vehicles within five years. The Aquada certainly has novelty value. But its success depends on there being enough paying customers who decide that it floats their boat.

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The ultimate game gear

Sep 6th 2007
From The Economist print edition

Video games: New furniture, controllers and screens are helping to make video games even more immersive and realistic

Illustration by Belle Mellor

AUDRA MCIVER, a publicist, was attending the New York Toy Fair in February when she came across a display of gaming chairs—seats designed specifically for playing video games. She sat down to try one, and the experience proved to be so engrossing that she remained in the chair, glued to the screen and playing “Project Gotham Racing 3”, for several hours. Passers by began asking her for product details, thinking she worked for the chair's manufacturer, at which point she realised just how long she had been sitting in it. “That was a great chair—I just loved it,” she recalls.

Most gamers are quite happy to sit on a sofa or a beanbag when playing “Gears of War” or “Grand Theft Auto”. But as other aspects of gaming become more realistic, from high-definition graphics to vibrating controllers, manufacturers sense an opportunity to offer dedicated gaming furniture, controllers designed for specific gaming genres and new types of fancy screens.

The Raptor, for example, made by the Ultimate Game Chair company, has built-in speakers and features 12 motors that provide a full-body version of the vibration effects delivered through hand-held controllers. Pyramat's S5000 Sound Rocker is another chair with built-in speakers; it uses wireless technology to beam the audio signals from the console. The Nethrone goes further: it is an ergonomic seat in an adjustable chrome frame which doubles as a monitor stand. The whole thing looks like a machine for subjecting astronauts to high G-forces, but is meant to allow gamers to play while reclining in comfort.

Fancy controllers are another way to increase the realism of certain games. Racing games found in arcades have steering wheels and pedals; wheels such as Logitech's NASCAR Racing Wheel can now be bought for use at home by those truly obsessed with driving simulators. The same is true of joysticks. The most advanced models, such as the ThrustMaster Top Gun Afterburner Force Feedback made by Guillemot, now resemble those found in fighter aircraft in their layout and complexity.

The popularity of the “Guitar Hero” series of games, in which players must press coloured buttons in time with classic rock tracks, means that many televisions in gaming households now have small, plastic electric-guitar controllers propped up next to them. “Rock Band”, a game in a similar vein that will be released later this year, will have bass-guitar and drum-kit controllers, too. Players may look ridiculous, but they would not enjoy such games nearly as much without these special controllers.

A lot of innovation is also going on in the field of displays. PC gamers tend to sit right in front of their screens while gaming, whereas console gamers tend to sit a bit further away. Sitting close to a large

display, be it a monitor or a widescreen television, provides a particularly immersive experience, because the game occupies almost all of the player's field of vision. Taking that a step further, Matrox, a Canadian firm that makes display cards for PCs, has devised “TripleHead2Go”. This is a box that combines three separate monitors so that they behave like a single, very large, very wide monitor. In games with a first-person perspective, such as “Unreal” or “Half-Life 2”, the monitors can then be arranged to mimic peripheral vision. And flight-simulator fans can simulate the view from an aircraft's cockpit windows.

Mitsubishi, meanwhile, is adding a new feature called “Game FX” to its ultra-large DLP televisions (which measure up to 73 inches diagonally). This will double the usual frame-rate to enable two separate sets of images to be interleaved. Using special glasses, players can alternate between images for the right and left eyes, so that the television becomes a three-dimensional display, at least for games that support this feature.

A different approach to immersion comes from Philips, which includes a technology called amBX in some of its televisions. Its main feature is “ambient lighting”, in which lights behind and around the screen bathe the room with the same hues shown on screen. Also available are extra speakers, fans and vibration packs, all of which can be triggered when necessary by suitably programmed games. Several video-game publishers, including Codemasters, Gearbox Software and THQ, have agreed to support the technology.

Where will it all end? Harvey Smith, a respected game designer who has worked on titles including “System Shock” and “Thief”, says the most immersive experiences depend not on fancy technology, but on good design, and the ability to create a coherent and believable game world. Despite all the gadgets that are now available, he says, “nothing is as immersive as a good book.”

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Zap! You're not dead

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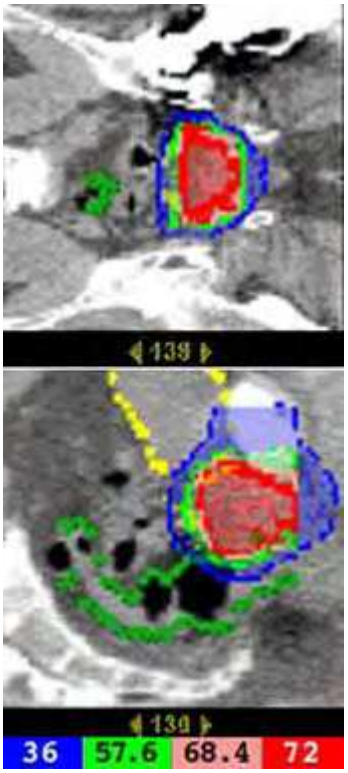
Medicine: A new approach to proton-beam radiotherapy, which allows treatment to be precisely targeted, could make it more widely available

RADIOTHERAPY, the use of radiation zipping through the DNA of cancer cells to kill them or halt their reproduction, has always had the disadvantage of causing collateral damage to healthy tissue. But some forms of radiation are worse than others. One of the best is a beam of protons. Unlike X-rays, the standard radiotherapeutic tool, a proton beam can be tuned in a way that causes it to dump its destructive energy at a particular depth beneath the skin. This means it can destroy a tumour without damaging other tissue. Unfortunately, the machines needed to generate such beams weigh several hundred tonnes and cost $100m or more to build. So although proton therapy has been available since 1990, there are still only about 25 clinics around the world that offer it.

An announcement at a meeting of the American Association of Physicists in Medicine, held in Minneapolis in July, could change this, however. Thomas Mackie of the University of Wisconsin has a new approach that he hopes will bring the cost of a proton-therapy machine down to $20m and the space required to a smallish room.



The dielectric-wall accelerator (DWA) that lies at the heart of Dr Mackie's machine was designed in the 1990s at the Lawrence Livermore National Laboratory in California as a portable X-ray source. At first, it was used to accelerate electrons rather than protons. Those electrons were smashed into a metal target to generate the high-energy X-rays that Livermore's physicists needed to peek inside ageing bombs and check that they were still in working order. But Dennis Matthews, one of Livermore's more medically minded programme directors, realised that by changing the polarity of the machine it could be used to accelerate positively charged protons, rather than negatively charged electrons. He then teamed up with the cancer centre at the University of California, Davis, to investigate the possibility of using a DWA for proton therapy.

The advantage of the DWA is its small size. Like all particle accelerators, it uses an electric field to speed up electrically charged particles. Most accelerators, however, speed up the particles over a long distance, using a moderate field. The DWA employs a succession of enormous fields over just a couple of metres.

That it is able to do so is the result of two technical advances. The first is an arrangement of insulating materials and conductors called a high-gradient insulator. Every insulator has a threshold beyond which the electrons are ripped off its component atoms and it becomes a conductor. Livermore's high-gradient insulator, though, damps down the early stages of this ripping process and creates a threshold so high that it can support the electric fields the DWA requires.

The second advance is a way of switching thousands of volts on and off in a few billionths of a second, a previously impossible feat. This requires a trick opposite to the first one—suddenly making an insulator into a conductor. The insulator in question is silicon carbide. When hit with laser light of the correct frequency, it becomes conductive.

The DWA, then, is a tube with an inner wall made of the high-gradient insulator and a series of silicon carbide switches along its length. As the switches are hit by a carefully timed sequence of laser pulses, a powerful electric field is created. Viewed from inside the tube, this field looks like an accelerating electrical pulse, and it is this pulse that picks up and carries the electrons—or, if the polarity is reversed, the protons.

Once Davis's scientists had pronounced the general idea sound, they and Dr Matthews looked around for

a commercial collaborator. They lit on a firm called TomoTherapy, which is where Dr Mackie came in—for, besides working at Wisconsin, he is also TomoTherapy's co-founder. At the moment the firm sells machines that tune traditional, X-ray-based radiotherapy to make it more effective. The idea is to adapt the techniques the firm has developed for controlling X-rays to control protons. It will take a while to determine whether this will work. But if it does, radiation therapy for cancer could become a lot less traumatic and a lot more effective.

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Hearts and minds

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Medicine: A new device detects heartbeats and brain activity at a distance, doing away with uncomfortable electrodes

AS ANYONE who has undergone an electrocardiograph (ECG) examination knows, it is an uncomfortable procedure that involves sticky electrodes which seem to want to rip out your body hair when they are removed. This is because the current the electrodes detect is weak, and a really good contact needs to be made between apparatus and skin.

Robert Prance and his colleagues at the University of Sussex, in England, plan to do away with all that. They have developed a device that can act as an ECG—or its cranial equivalent, an electroencephalograph—without even touching the skin. It does so by measuring the signal without drawing current, using “high impedance” sensors.

Impedance is related to resistance—which, as generations of schoolchildren have had drummed into them, is the ratio of voltage to current. If current and voltage are fluctuating, however, other factors come into play, as the current and voltage interact with each other. Impedance is a measure of electrical resistance that captures the effects of this feedback.

The advantage of using high-impedance sensors is that the signal—an electric potential—can be measured at a distance. This is because the resistance is so great that a layer of air makes no appreciable difference. Indeed, Mr Prance's new device can pick up the trace of a heartbeat from a metre away. It can also sense electrical activity in the brain through the hair.

The result is a probe that can easily be picked up by medics and held close to the patient. Wires attached to the back of the probe lead to a computer that translates the electrical signals into a picture of the heartbeat, brainwave or whatever. A test version developed by the team was the size of a watch and was worn on the wrist. The final version will be of similar size, but will not touch the skin.

Mr Prance hopes that his invention will not merely be more comfortable than today's electrode-based detectors, but will also be able to do new things. His team is experimenting with the use of many sensors in combination to produce pictures of electrical activity in the heart. An electrical wave traverses the heart each time it beats, co-ordinating the contraction and relaxation of the chambers that pump blood around the body. By joining 25 sensors together, the researchers hope to demonstrate the technique's potential as a medical-imaging tool. It would be difficult to do this trick with conventional detectors.

Nor is the high-impedance technique restricted to medical applications. It is already being adapted to look for faults in microelectronic circuits, and it might eventually be used to test mechanical components made of stainless steel or carbon fibre for structural integrity. It could thus be used to give machines, as well as people, a clean bill of health.

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Health 2.0

Sep 6th 2007
From The Economist print edition

Technology and society: Is the outbreak of cancer videos, bulimia blogs and other forms of "user generated" medical information a healthy trend?

Illustration by Belle Mellor

VIDEOS of skateboarding dogs on YouTube might not appear to have anything to do with blogs about living with asthma. But the rise of "user-generated content"—spurred by sites such as YouTube, Facebook and Wikipedia—has also infected health care. Millions are now logging on to contribute information about topics stretching from avian-flu pandemics to the extraction of wisdom teeth or the use of acupuncture to overcome infertility. You could call it user-generated health care, or Health 2.0.

In some ways this is nothing new. The BrainTalk Communities, an online support group for neurology patients, began in 1993. But content now comes in different forms, such as blogs and videos, and there are many more contributors. More than 20% of American internet users have created some sort of health-related content, according to Jupiter, a market-research firm. The hype around "Web 2.0" has made people aware of the new possibilities, says John Grohol, a psychologist who launched PsychCentral.com, a mental-health website, in 1995. The result, he says, has been a "snowball effect" of new content and new users.

To gauge the size of this snowball, look at OrganizedWisdom, a firm based in New York. It launched in October 2006 as a health-care Wikipedia of sorts: a site to which consumers could contribute their own nuggets of health wisdom. Yet after only a few months it transformed itself into an index of the existing web content. The firm's founders had discovered that there already was quite enough user-generated health information online; the real problem was finding the good stuff.

The explosion of user-generated content in health care is, in part, the result of broader internet trends: more and more people have broadband access and the tools for creating content are getting easier to use. New software, for instance, makes it easy to launch and maintain a site such as FluWikie (which provides information about preparing for an influenza pandemic), and digital cameras make it a snap to take and upload photos of, say, epigastric hernia surgery.

But there are other drivers, too. Those with multiple chronic conditions, such as diabetes and depression, or lesser-known illnesses such as chronic fatigue syndrome, are anxious to get tips from others in similar situations. And today's body of medical knowledge is too vast for any one doctor to know it all. Cathy Fischer, a producer at a non-profit television company in San Francisco, for example, was not getting the information she needed from her doctor. So she joined an online group to connect with others who, like her, had undergone fibroid surgery.

In some ways it is strange that there is so much discussion of health-related matters online, given that health, like money, is a topic that many people will not discuss even with family members. People do not seem to realise how permanent information can be online, warns Jennifer King, a researcher at the University of California in Berkeley. She worries that personal data could be misused. Some sites mitigate that risk by recommending the use of pseudonyms. So Meg7 talks about her family's struggle with Lou Gehrig's disease, Aprilly shares information about babies with colic, and jojo1972 writes about how she handles migraine headaches.

Misinformation is another worry. On the internet, as the old saying goes, nobody knows you are a dog—or an idiot, notes Dan Keldsen of AIIM, a non-profit association based in Silver Spring, Maryland, which helps companies manage digital information. And too much health information can confuse people, says Monique Levy of Jupiter. But a survey by the Pew Internet & American Life Project in Washington, DC,

suggests that although user-generated information offers consumers more health options, the upside outweighs the risk, says Pew's Susannah Fox. Nearly one-third of the 100m Americans who have looked for health information online say that they or people they know have been significantly helped by what they found. In contrast, only 3% reported that online advice had caused serious harm.

A lot of user-generated health information is accurate. A panel of neurology specialists judged that only 6% of information posted in the epilepsy-support group of BrainTalk was factually wrong, according to a study published in 2004 in the *British Medical Journal*. And with enough people online, misinformation is often quickly corrected. Inaccurate posts on the website of the Association of Cancer Online Resources (ACOR), for example, will be pointed out within two hours, says Gilles Frydman, the founder of the association, based in New York.

In some cases web-based information from other sufferers can be a patient's best hope. In the BrainTalk study, 40% of respondents said they used the site because their doctors did not or could not answer their questions. But the internet's power to connect people means that a person diagnosed with a rare form of cancer can find hundreds of other people across the world who can recommend doctors or provide first-hand information about treatment, explains Mr Frydman. He founded ACOR in 1996 after his wife was given inaccurate information about the treatment she needed for breast cancer. Given the potential benefits, the risk of giving up some privacy seems insignificant, he says. “If I am diagnosed with a rare cancer, I will think for two minutes, and then I will agree that giving up my privacy is worthwhile.”

Some observers expect even greater benefits from user-generated health sites in future. Patients who live with chronic diseases such as epilepsy often know more about them than their doctors, contends Daniel Hoch, a professor at Harvard Medical School who helped to found BrainTalk. Many doctors, he says, “don't get the wisdom of crowds.” But he thinks the combined knowledge of a crowd of his patients would be far greater than his own. A wiki capturing the knowledge of, say, 300 epileptics could be invaluable not only to others with epilepsy, but also to the medical professionals who care for them. Their aggregated understanding, he says, “would be helpful to all health care.”

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The world on your desktop

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From The Economist print edition

As the internet becomes intertwined with the real world, the resulting "geoweb" has many uses

"EARTH materialises, rotating majestically in front of his face. Hiro reaches out and grabs it. He twists it around so he's looking at Oregon. Tells it to get rid of the clouds, and it does, giving him a crystalline view of the mountains and the seashore."

That vision from Neal Stephenson's "Snow Crash", a science-fiction novel published in 1992, aptly describes Google Earth, a computer program that lets users fly over a detailed photographic map of the world. Other information, such as roads, borders and the locations of coffee shops can be draped on to the view, which can be panned, rotated, tilted and zoomed with almost seamless continuity. First-time users often report an exhilarating revelatory pang as they realise what the software can do. As the globe spins and switches from one viewpoint to another, it can even induce vertigo.

Google's virtual globe incorporates elevation data that describe surface features such as mountains and valleys. Other data is then overlaid on it, notably a patchwork of satellite imagery and aerial photography licensed from several public and private providers. The entire planet is covered, with around one-third of all land depicted in such detail that individual trees and cars, and the homes of 3 billion people, can be seen. All this has long been imaginable but has become possible only recently, thanks to high-resolution commercial satellite imaging, broadband links and cheap, powerful computers.

Keyhole, an American firm, released the first commercial "geobrowser" in 2001. Google bought Keyhole in 2004 and launched Google Earth in 2005. Its basic, free version has since been downloaded over 250m times, says Michael Jones, one of Keyhole's founders and now Google Earth's chief technologist.

In 2004 America's space agency, NASA, released another geobrowser, called World Wind. More than 20m copies are in use. But Google's main geobrowsing rival is Microsoft. Both Encarta, Microsoft's encyclopedia, and TerraServer, a database demonstration project, had geobrowser-like features in the 1990s. At the end of 2005 Microsoft bought GeoTango, which contributed to the development of Live Search Maps, a web-based geobrowser that uses data from Virtual Earth, Microsoft's digital model of the planet. (Google also provides a web-based geobrowser via Google Maps.)

An overlay shows desroyed villages in Darfur; sunbakers on Sydney's Bondi Beach; the city of Berlin, with detailed 3-D buildings

Vincent Tao, GeoTango's founder and now director of Virtual Earth for Microsoft, allows that Microsoft has spent at the “couple of hundreds of millions of dollars level” on Virtual Earth. Most of that has been spent on the acquisition of imagery, which now totals 14 petabytes on 900 servers. (One petabyte is 1m gigabytes.) The company is also adding detail in the form of textured three-dimensional models of cities devised from aerial photographs; ten cities are added each month.

For its part, Google is relying on “crowdsourcing”—enlisting its users to build and contribute images, 3-D models of buildings and other data to enrich its digital planet. So far 850,000 users have contributed millions of annotations and more than 1m images, vetting one another's contributions. Wikipedia, which uses a similar system, is itself available through Google Earth. Users can read Wikipedia articles placed on the globe using “geotags”—spatial co-ordinates encoded into each entry. Other sites including Flickr, the leading photo-sharing site, and Google's YouTube, also support geotags.

These virtual globes are being put to an unexpected range of uses. Google Earth was used to co-ordinate relief efforts in New Orleans in the aftermath of Hurricane Katrina in 2005. Tax inspectors in Buenos Aires are using it to see whether people are correctly reporting the size of their properties. An Italian programmer who was using the software noticed odd markings on the ground near his home town which turned out to be a previously unknown Roman villa. Roofers, landscape gardeners and solar-panel installers use the virtual maps to scout for potential customers. Rebecca Moore, a member of the Google Earth team, used the software to galvanise her neighbourhood in the Santa Cruz mountains in opposition to a nearby logging project. And the Amazon Conservation Team, an American charity, equipped 26 indigenous tribes in the Amazon with hand-held global positioning system units and computers running Google Earth, to enable them to assert their legal sovereignty in the face of threats from loggers and miners.

“It's turning into a map of historical significance,” says John Hanke, head of Google's Earth and Maps division, and another of Keyhole's founders. “It is going to be a map of the world that is more detailed than any map that's ever been created.” He may be understating the technology's importance.

The world-wired web

Geobrowsers are a stunningly effective means of visualising the planet. But they are just one part of a broader endeavour, the construction of a “geoweb” that is still in its infancy, much as the world wide web was in the mid-1990s. The web did away with many geographical constraints, enabling people with common interests to communicate, regardless of location. Yet placelessness jettisons some of the most useful features of information, which are now attracting new attention.

At present the most feverish excitement surrounds the combination of virtual maps with other sources of data in “mash-ups”. One of the earliest examples, housingmaps.com, created in 2005, combines San Francisco apartment listings from Craigslist.org with Google Maps. Mash-ups have since become commonplace—Google says its maps are used in more than 4m of them. In April the company added features to Google Maps to make it easier to create mash-ups. Microsoft is at work on a similar tool. Another site, platial.com, provides free mash-up tools for bloggers, spawning a new genre in self-absorption: autobiogeography.

The geoweb has obvious appeal to those in the property business. Zillow.com mashes Microsoft's Virtual Earth with other data to create maps of home prices in America. But property is just the start. At gasbuddy.com, visitors can map local petrol prices to plan fill-ups. ExploreOurPla.net brings together thousands of sources of images and data to let users investigate climate change.

House prices overlaid on a satellite map at Zillow.com; San Francisco, seen on Google's Street View; a GIS view of an air-force base

These examples illustrate the emerging architecture of the geoweb: data, such as information on traffic jams or seismic tremors, is hosted separately from the images and models of the geobrowser, which assembles, combines and displays the information in new ways. GeoCommons.com hosts data, from crime rates to melanoma statistics, that can be combined to create colour-coded “heat maps” of intangibles such as “hipness”. Visitors to Heywhatsthat.com can generate a diagram of the view from any high spot to see the names of visible mountain peaks.

Here the neogeographers, as mash-up enthusiasts are known, have crossed into the terrain of “geographic information systems” (GIS), the fancy software tools that are used by governments and companies to analyse spatial data. Geobrowsers are still quite primitive by comparison, but are much easier to use. For its part GIS deals with critical infrastructure, so its data tend to be of impeccable quality. Jack Dangermond, the founder of ESRI, a private firm that dominates the GIS market, says interest stimulated by the geoweb has helped to boost business by 20% this year. Ron Lake of Galdos Systems, a firm that specialises in integrating civic geodata, says geobrowsers have led to a push for better public access to such data.

When the analytical insights and data quality of GIS are combined with the geoweb's visualisation and networking prowess, startling efficiencies emerge. Last year Waterstone, a consultancy, assembled the geodata for 13 American air-force bases and wrapped them up in a modified version of NASA's World Wind geobrowser. This makes it possible to walk through a 3-D model of each base and call up multiple layers of data. A project manager can view live video from a construction site and identify the contractors and their vehicles. A planner can assess a proposed building's effect on runway visibility. And an environmental engineer, while viewing a plume of contaminated groundwater, can delve into 45 years' worth of documents associated with the site. Carla Johnson, Waterstone's boss, says the project cost less than $1m and is expected to save the air force around $5m a year through faster decision-making.

Smile, you're on Google Earth

Like any technology, the geoweb has both good and bad uses. When geobrowsers first introduced easy access to satellite imagery, something that had previously only been available to intelligence agencies, many observers worried that terrorists might use such images to plan attacks. Google Earth seems to have been used in this way by Iraqi insurgents planning attacks on a British base in the city of Basra, for example, in which individual buildings and vehicles can be clearly seen. After this came to light in January, the images of the area in question were replaced with images from 2002, predating the construction of the camp.

This summer a member of the Assembly of the State of New York called on Google to obscure imagery after the geobrowser was used by plotters in a foiled airport attack. Yet Mr Jones says Google has been formally contacted by governments in this regard only three times (including by India and by an unspecified European country), and that in each case the issue was resolved without making changes to the imagery in Google Earth.

Although some buildings or areas are blurred for security reasons, Google says this is done by the firms from which it licenses the imagery. Microsoft says it blurs photos in response to “legitimate government and agency requests”. But the images are typically between six months and three years old, which limits their tactical usefulness; and satellite and aerial images are available from many other sources, and have been for some time. So in some respects, geobrowsers have not made possible anything that was not possible before—they have just made access to such images much cheaper and easier.

“It's a question of the policy and the thinking catching up with the technology,” says Mr Hanke. “Ease of access alters the debate.” Google insists that it takes security concerns very seriously, and points out that the American government's official position is that the benefits of making satellite images widely available outweigh the risks. Indeed, some jurisdictions are embracing the exposure. The Canary Islands have donated high-resolution imagery to Google in the hope that virtual visitors might become real tourists, and the city of Berlin has made its painstakingly detailed digital models available through Google Earth.

For governments that are used to hiding things from each other's spy satellites, the advent of the geobrowsers does not change things very much. Ordinary members of the public can now call up images of Chinese nuclear submarines via Google Earth, but intelligence agencies around the world have had access to far more detailed satellite images for years. And the fact that the submarines can be seen at all means that China is not trying to keep their existence a secret. Even so, armed forces do find the geoweb useful. The American military is a big user of both World Wind and the enterprise version of Google Earth. And some governments do have grounds for concern: the government of Sudan, for example, would undoubtedly prefer the United States Holocaust Memorial Museum not to highlight destroyed villages in Darfur via an overlay in Google Earth.

Close to home, the geoweb turns out to have implications for personal privacy as well as geopolitics. Google's new Street View feature, launched in May, lets users of Google Maps move through stitched-together street-level imagery of several American cities, giving private citizens a taste of “crowdsourced” surveillance. All the views are of public streets yet, in aggregate, they challenge accepted notions of privacy—especially for those caught doing something naughty as Google's specially equipped camera van swoops past. Shortly after the feature was launched, users uncovered a car getting a ticket from Miami police, a man scaling a locked gate in San Francisco and another man entering a shop selling sex toys.

“When the coverage is everything and everywhere, there is going to be a big problem,” says Lee Tien, a lawyer at the Electronic Frontier Foundation, an internet campaign group. Satellite images are not detailed enough to allow individual people or vehicles to be identified, but faces and licence plates can be seen in Google's Street View. There are few legal precedents. In 2003, Barbra Streisand sued to keep her Malibu estate out of an online library of images of the California coast. She lost. Although movie stars are more stalked than most—several sites provide geobrowser links to celebrities' homes—it is easy to imagine innocent annotations that could be unintentionally dangerous. Shelters for battered women, for example, often prefer not to make their locations widely known.

Google's Mr Jones believes the benefits are strong enough to overcome these concerns. “I think there's a social barrier to everything new,” he says. The availability of useful information will outweigh concern over surveillance and loss of privacy, he believes. Five or six years ago, he notes, people worried about the spread of camera phones. But now “everyone just presumes that everybody has a camera on their phone—it's nothing special.” The lesson of previous technologies, he says, is that “we all are happy to tolerate things that would have previously been considered intolerable.”

Indeed, all the features—good and bad—of the internet will eventually gain new dimensions on the geoweb. Bots and intelligent agents will crawl it. It will be populated by avatars, as Second Life becomes first life, and it will enable the inverse: telepresent machines roaming the real world. Ghostly, private worlds will be overlaid on reality, sensitive only to members. The malicious possibilities are sobering: location-based viruses, geohacking and, worst of all, geospam.

Despite these concerns, the potential of the geoweb is not lost on investors. Since the beginning of last year more than 20 geospatial firms have been the targets of mergers and acquisitions, with Google, Microsoft and ESRI among the buyers. But it is not quite time to declare the dawn of Web 3.0. For one thing, consumer geobrowsing does not make any money. Microsoft's Mr Tao says that revenue has to come from advertising for now, until critical mass enables location-based transactions. Google, true to form, is investing first and worrying about revenue later.

The road to Web 3.0

A more immediate hurdle is on the verge of resolution. Google recently submitted KML, the tagging protocol that describes how objects are placed in Google Earth, to the Open Geospatial Consortium (OGC), a standards body. This will let other firms support it. GML, a protocol developed by the OGC to encode spatial-information models, was formally adopted as an international standard this year. Standards for dynamic geodata, the sharing of 3-D models of buildings and geodata from sensor

networks ought to be in place by next year. All this will ensure interoperability and do for geodata what the web did for other forms of data, says Carl Reed, the OGC's chief technologist.

At the same time, the incorporation of satellite-positioning technology into mobile phones and cars could open the floodgates. When it is available, simply moving about one's neighbourhood can then be tantamount to browsing and generating content without doing anything, as demonstrated by a company called Socialight. Its service lets mobile users attach notes to any location, to be read by others who come along later. Taken further, the result could end up being a sort of extrasensory information awareness, annotation and analysis capability in the real world. “When that happens”, says Mr Jones, “then the map is actually a little portal on to life itself.” The only thing that can hold it back, he believes, is the rate at which society can adapt.

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The trouble with computers

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Computing: They may be powerful, but computers could still be easier to use. Might new forms of interface help?

IT HAS been called a revolution, and rightly so. Over the past 25 years computers have become a feature of everyday life in rich countries and, increasingly, in poor ones too. Today's machines are fast—a typical desktop now has ten times the number-crunching power of the fastest machine on earth in 1983—and widespread, given that the world's 3 billion or so mobile phones are, in effect, pocket computers. But although computers have become cheaper, more capable and more commonplace, they have made much less progress when it comes to ease of use. Their potential remains tantalisingly out of reach for people who find their control systems, or "user interfaces", too complex. And even people who have no difficulty navigating menus, dialogue boxes and so on, might use computers more productively if their interfaces were better.

Consider the Nokia 6680 mobile phone, says Adam Greenfield, an expert in computing culture at New York University and the author of "Everyware", a book about the future of computing. He found that 13 clicks were needed to change its ringtone. "It's an interface designed by engineers for engineers," he says. Steven Kyffin, a senior researcher at Philips, a consumer-electronics giant based in Eindhoven in the Netherlands, concedes that computer programmers and engineers, himself included, are often guilty of designing complicated systems packed with too many features. "We're compelled by complexity," Mr Kyffin says. "There's a point where humanity just can't handle it." Tellingly, the field of interface design even has an unwieldy name: it is known as "human-computer interaction", or HCI.

Part of the problem is that programmers have traditionally had more power than designers. Programmers put in place the myriad features they want; interface designers then struggle to wrap them all up in a product that is simple to use. The results, all too often, are clunky interfaces. But the balance of power may now be shifting to the designers. Ken Wood, deputy director of Microsoft's research laboratory in Cambridge, England, says his company is putting greater emphasis on interface design. Three years ago, he says, none of his lab's budget was earmarked for pure HCI research. Today, a quarter of the lab's budget goes on it.

Making computers simpler to operate would help the people who use them and the companies that produce them. Ease of use is one area where technology firms can differentiate themselves and gain competitive advantage. Just look at Apple, which is able to charge a premium for its products thanks to their elegance and simplicity. Its Macintosh computer, launched in 1984, helped to popularise the window, menu and mouse-based graphical interface—a huge step forward from the system of cryptic typed commands it replaced. Graphical interfaces became common in the 1990s, but there has been very little progress since.

What comes next? In March this year Microsoft assembled a group of HCI experts to discuss this question at a conference near Seville called HCI 2020. Andrew Herbert, managing director of Microsoft's Cambridge laboratory, told attendees that interface simplification is vital if the computing world is to be opened up to new consumers such as the elderly, children and people with little computer experience. Microsoft says new features in its Windows Vista operating system, such as 3-D graphics intended to make navigation easier, demonstrate its commitment to greater ease of use.

The view from Hollywood

But tweaking an existing window-based interface is hardly a radical step. For a more dramatic vision of what may be to come, look no further than "Minority Report" (2002), Steven Spielberg's futuristic thriller starring Tom Cruise. Set in the year 2054, it depicts people operating computers using hand gestures detected by sensors. Gesture-based computing might sound odd—do you really want to dismiss a document on your computer by airily waving it away?—but computer mice were derided in 1983.

Today's gesture-based systems take many forms. iO, a company based in Treviso, Italy, sells the Sensitive Wall, a large screen for banks and showrooms that senses movement within a metre or so. Passers-by can wave their hands to flip the pages of a virtual brochure through a shop window, or view promotional images from different angles. “The idea is to have the digital world melt into the physical world,” says iO's Daniele Modesto.

Perceptive Pixel

The “multi-touch” interface devised by Jeff Han, a researcher at New York University's Courant Institute, is more elaborate. It is based on a large touch screen (pictured) that can sense more than one touch at a time. This makes possible two-handed gestures such as selecting an area of an image, rotating it or zooming in and out. He believes this sort of approach will have far wider appeal than today's windows and mouse-based systems, and he has founded a start-up, called Perceptive Pixel, to commercialise the technology.

Another version of a multi-touch screen, developed at Microsoft, shows how the technology could be integrated into a home, office or shop, in the form of a table. The Microsoft Surface, a horizontal touch-screen computer with neither keyboard nor mouse, will go on sale in November. Its gesture-based interface allows images and documents to be manipulated; the table-like computer also recognises other devices (such as digital cameras or mobile phones) when they are placed on top of it, and can download images from them automatically.

Touch screens make computing feasible in new places, especially public ones, by doing away with keyboards, which can get gummed up with grime or spilled drinks. iSuppli, a market-research company based in El Segundo, California, estimates that the wholesale touch-screen market will expand by 17% this year to reach $2.8 billion. The incorporation of touch screens into portable devices is one driver of this growth. Apple's iPhone, launched in June, is a mobile phone with a gesture-sensitive multi-touch screen. Objects can be moved on the screen by dragging them with a finger, made bigger or smaller by spreading or pinching them with two fingers, and discarded with a flick off the screen's edge. Touch screens have particular appeal in portable devices because virtual buttons and other controls appear on screen only when required. The lack of a physical keyboard leaves more room for a bigger screen.

Another alternative to the mouse as a pointing device is to use a gaze-tracking camera, which works out where you are looking and moves an on-screen pointer accordingly. A foot-pedal or keyboard switch then replaces the click of a mouse button. So far such systems appeal chiefly to disabled people who cannot use a conventional mouse. Antonio Tessitore of Villa Literno, Italy, had to give up his job after developing a degenerative muscular disease. Last year he began a new full-time job at a charitable association, using a gaze-tracking system that, he says, allows him to operate a computer with “no limitations”. Manu Kumar, a researcher at Stanford University in California, is developing a gaze-tracking system called GUIDe aimed at a broader market: people who share documents. It works out which parts of documents people pay the most attention to, and highlights them accordingly. Other HCI researchers are using microphones, webcams and other sensors to try to work out what people are doing.

But making computers simpler to use will require more than novel input devices. Smarter software is needed, too. For example, much effort is going into the development of “context aware” systems that hide unnecessary clutter and present options that are most likely to be relevant, depending on what the user is doing.

Giving you what you want

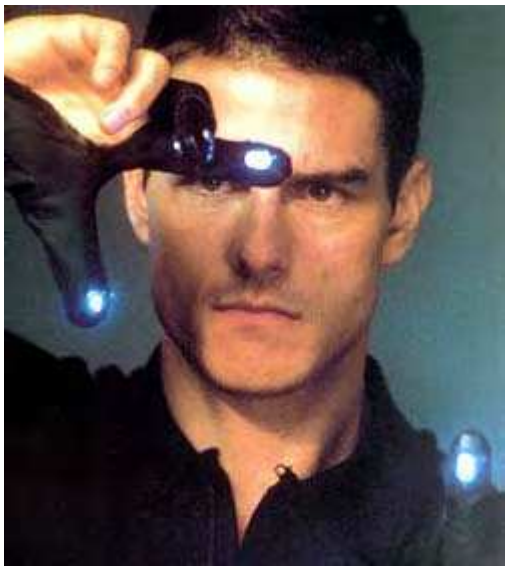
The trick, says Patrick Brezillon of University Paris VI, is to get computers to “size up the temperament of users” and then give them what they want. This can be done by analysing the frequency of keystrokes, the number of typos, the length of work breaks, internet-search terms and background noise, among other things.

All sorts of things can be done with this information: playing soothing music for agitated users, proposing a break if the number of errors goes up, or suppressing notification of incoming e-mails to avoid breaking someone's concentration. Albrecht Schmidt, an HCI expert at the Bonn laboratory of the Fraunhofer Institute, one of Europe's largest research organisations, says a mobile phone could even change its behaviour depending on its location. One of his prototype systems shuffles the queue of voice-mail messages to give priority to messages from friends when the phone is out of the office.

The problem with all of this is that people may not want computers to make assumptions about their needs and preferences—not least because those assumptions may be wrong. But proponents of context-aware computing say it is merely the next logical step from existing systems such as spam filters. The next generation of e-mail filters, say HCI researchers, will be “gradation” filters that delay notification or delivery of certain e-mails to avoid bothering the recipient.

Henry Holtzman, a researcher at the Massachusetts Institute of Technology, says vehicles provide the most promising environment for context-aware interfaces. Since the position of the driver is fixed, cars can be fitted with sensing equipment that would be obtrusive in other contexts. Stopping mobile phones from ringing in heavy rain, or during a sharp turn, he suggests, might prevent accidents. But, he adds, if such decision-making by computers is to be accepted, people must be convinced to trust it.

Ronald Grant Archive



They said mice were silly, too

That could be difficult. Anind Dey, a researcher at Carnegie Mellon University's HCI Institute in Pittsburgh, Pennsylvania, is designing a vehicle-navigation system that tailors driving directions for individual drivers. Cars fitted with sensors and cameras collect data on the driving styles of test participants, including their acceleration and braking patterns, assertiveness in changing lanes, and so on. The navigation computer then picks a route that accommodates each driver's strengths and weaknesses. The system works fine—but when drivers are told what is happening, they get angry. This suggests, says Mr Dey, that contextual computing needs to be discreet: such systems are, in effect, judging people and trying to influence their behaviour. Systems that manipulate people, he says, may have to keep quiet about it to work.

Many futurists and computer experts believe that the logical conclusion of all of these new input devices, sensors and smarter software to anticipate users' needs, will be for computing to blend into the background. In this “ubiquitous computing” model, computers will no longer be things people use explicitly, any more than they “use” electricity when turning on a light or a radio. Mr Greenfield says a digital “dream world” that provides “one seamless experience of being immersed in information” hinges on one big if: computers and their interfaces must become so good that, like electricity, they rarely require concentrated attention. The trouble with computers in their current form is that they are still all too conspicuous.

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Nuclear dawn

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Energy: Attitudes to nuclear power are shifting in response to climate change and fears over the security of the supply of fossil fuels. The technology of nuclear power has been changing, too

Alamy

OVER the next few decades global electricity consumption is expected to double. At the same time, many power plants in rich countries, built back in the 1960s and 1970s, are nearing the end of their projected lifespans. Meanwhile, concern is swelling both about global warming, and about the Western world's increasing dependence on a shrinking number of hostile or unstable countries for imports of oil and gas. The solution to this conundrum, in the eyes of many governments, is nuclear power.

Around the world, 31 reactors are under construction and many more are in the planning stages. Some of the most ambitious programmes are under way in developing countries. Both China and India are building several reactors and intend to increase their nuclear-generating capacity several times over in the next 15 years. Some countries, such as Turkey and Vietnam, are considering starting nuclear-power programmes, and others, including Argentina and South Africa, plan to expand their existing ones.

The rich world is also re-examining the case for nuclear. America is expecting a rush of applications to build new reactors in the coming months—the first in almost 30 years. Britain's prime minister, Gordon Brown, recently affirmed his support for a new generation of nuclear power plants. Construction of a new one in Finland, western Europe's first for 15 years, began in 2005; work is just starting on another of the same design in France. Other European countries that had frozen or decided to scrap their nuclear programmes are rethinking their plans.

There are good reasons for this enthusiasm. Nuclear reactors emit almost none of the greenhouse gases responsible for global warming. They are fuelled by uranium, which is relatively abundant and is available from many sources, including reassuringly stable places such as Canada and Australia.

At the moment 439 nuclear reactors in 31 countries supply 15% of the world's electricity. Even without a price on carbon emissions, says Fatih Birol, the chief economist of the International Energy Agency (IEA), the worldwide generating capacity of nuclear power plants will probably increase from about 370 gigawatts today to 520 gigawatts in 2030. But if there were a price on carbon dioxide, says Mr Birol, “it could grow even faster.”

But there are also good reasons for scepticism. Nuclear plants are expensive: each can cost several billion dollars to build. Worse, in the past, ill-conceived designs, safety scares and the regulatory delays they gave rise to made nuclear plants even more costly than their hefty price-tags suggest. Vendors of new nuclear plants, such as Areva, General Electric (GE), Hitachi and Westinghouse, argue that things are different now. The latest designs incorporate suggestions from utilities and operators with decades of experience, and should, their creators say, make new plants safer and easier to operate. They believe

the simpler new reactors, with their longer lifespans and reduced maintenance costs, will also improve the economics of the industry.

All nuclear reactors rely on nuclear fission, a process that was discovered in the 1930s. When certain heavy atoms are struck by a neutron, they absorb it, become unstable and split apart. This results in two lighter atoms, and two or three neutrons are ejected. The process releases large amounts of energy, much of it in the form of the kinetic energy of the fast-moving fission products. This kinetic energy is converted to heat as the fission products slow down.

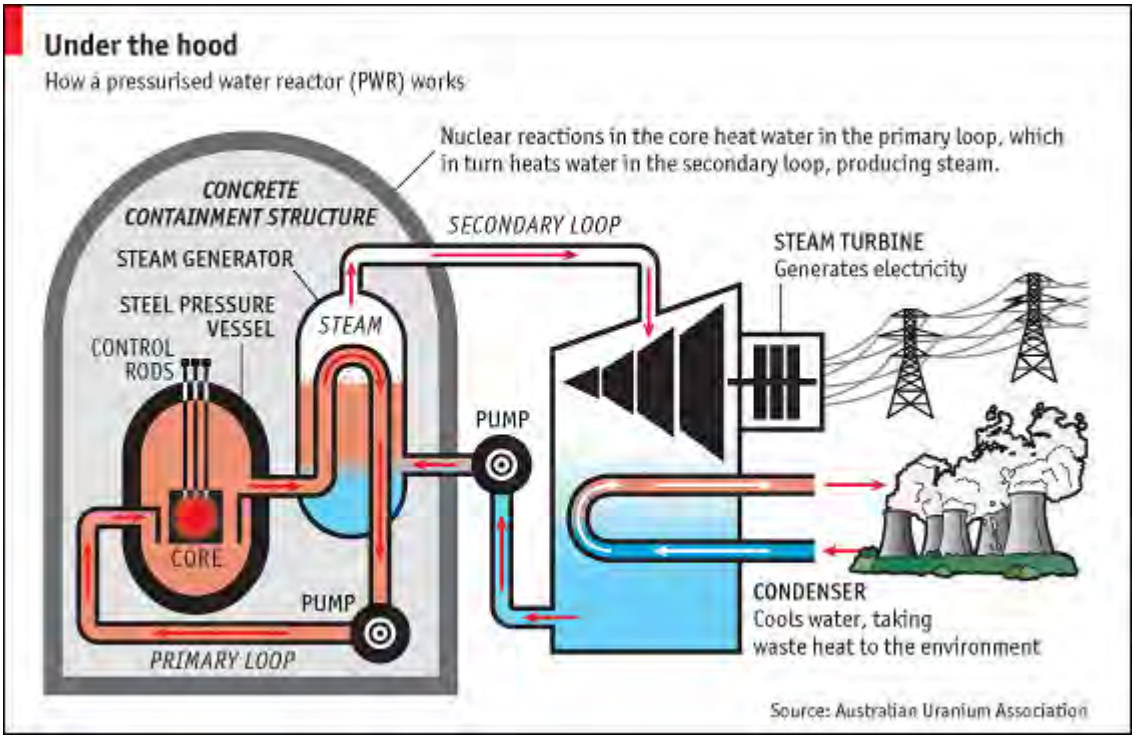
“The latest generation of reactors includes important improvements over prior designs.”

If the ejected neutrons go on to strike other unstable atoms nearby, those too can break apart, releasing further neutrons in a process known as a chain reaction. When enough of these neutrons produce further fissions—rather than escaping, bouncing off or being absorbed by atoms that do not split apart—the process becomes self-sustaining. An uncontrolled chain reaction within a large amount of fissionable material can lead to an explosive release of energy, as in nuclear weapons. But in nuclear reactors, which contain far less fissionable material, the chain reaction and the release of energy are carefully controlled.

War and peace

In 1942 the physicist Enrico Fermi led a group of scientists who built the first nuclear reactor as part of the Manhattan Project—America's effort to build the first atomic bomb. Although the reactor was simple in design, it included features that are part of almost every nuclear power plant today. The reactor core consisted of pellets of uranium fuel inside bricks made of graphite, which served as a “moderator”, reducing the speed of the neutrons in order to maximise their ability to cause further fissions. (Most reactors today use water as the moderator.) In addition, the set-up included “control rods” made of a material that absorbed neutrons. These rods could be inserted into the core to slow or shut down the chain reaction if necessary.

Although all of this was done with a view to building an effective weapon, the scientists involved always knew that nuclear technologies also had promising peaceful uses. In 1953 America's president, Dwight Eisenhower, gave his famous “Atoms for Peace” speech before the United Nations General Assembly, in which he called for the controlled application of nuclear energy in a civilian context. In the mid-1950s the world's first civilian nuclear power stations appeared in America, Britain and Russia.



America's first civilian nuclear power plant, of a type called a pressurised water reactor (PWR), was designed by Westinghouse and adapted from the reactors used in nuclear submarines. Inside a PWR, water—which is kept under high pressure to prevent it from boiling—has a double function. In a closed

“primary” loop, it serves as a coolant for the reactor core and as a moderator, to slow down the fast neutrons created during fission. As the water in the primary loop circulates, it becomes very hot. This heat energy is then transferred to a secondary loop of water. The resulting steam is used to spin turbines that generate electricity.

Nuclear's golden age

In the 1950s the pursuit of atomic energy was viewed as a largely positive endeavour. In a speech in 1954 before a group of science writers, the head of America's Atomic Energy Commission, Lewis Strauss, even declared that one day nuclear power would be “too cheap to meter”. By the mid-1960s America's two leading reactor vendors, General Electric (GE) and Westinghouse, were involved in an intense competition. GE began to offer “turnkey” contracts to utilities, in which it delivered an entire nuclear plant for a fixed price. To keep up, Westinghouse followed suit, causing a surge in orders. But this sales ploy turned out to be a money-loser for both firms in the end.

The boom in reactor construction coincided with the beginnings of America's environmental movement and a sense of growing unease about nuclear power. By the early 1970s uncertainties over radioactive-waste disposal, the effects of radiation and the potential consequences of a nuclear accident prompted a backlash. One frightening scenario was the “China Syndrome”: the idea that molten radioactive fuel undergoing a runaway reaction might burn its way through the bottom of the reactor's pressure vessel and containment structure, and then down into the Earth. Of course the fuel would never actually reach China, but were it to breach the containment structure, the result could be a huge release of radioactivity.

As electricity demand levelled off and interest rates shot up, applications to build nuclear reactors started to decline, at least in America. Then in 1979 a serious accident occurred at a plant at Three Mile Island, near Harrisburg, Pennsylvania. A combination of mechanical failures and operator errors caused a partial melting of the reactor core. Fortunately the pressure vessel housing the core held, and virtually no dangerous radioactive gases escaped from the plant, says J. Samuel Walker, the historian of the Nuclear Regulatory Commission, the agency that regulates America's nuclear power plants. Although the accident nearly killed off America's nuclear-power industry, it did not harm any people.

But a few years later a true disaster occurred. In 1986 a reactor at Chernobyl in Ukraine became unstable, and a power surge inside the core led to two explosions that destroyed the reactor and blew its roof off. As a result, significant amounts of radioactive material escaped into the environment. About 30 emergency workers died of radiation exposure shortly after the accident. Thousands more people who lived in contaminated areas developed serious health problems, some of them fatal. The cause of the accident was found to be a combination of operator errors and inherent flaws in the plant's design. Industry insiders pointed out that reactors based on this flawed design had not been deployed in Western countries. Even so, the accident further undermined public confidence in nuclear power.

Although the nuclear industry faced decline or stagnation in many Western countries in the 1980s, it thrived in one of them: France. After the oil crisis of 1973, France decided to pursue the goal of fossil-fuel independence. With few energy resources of its own, pursuing nuclear power seemed like the best strategy. All the commercial nuclear plants operating in France today were based on technology devised by Westinghouse, which licensed its PWR design to France in the 1960s. Today the country has 59 nuclear reactors supplying 78% of its electricity.

Nuclear has worked well in France in part because it is accepted by politicians and the public alike, so there are few delays due to protests or planning problems. Elsewhere, these have lengthened the construction period and enormously increased costs. Once up and running, however, nuclear plants have a distinct advantage over those run on coal or natural gas: they need comparatively little fuel to operate. Although the price of uranium jumped from about $70 per pound in January to about $130 in mid-July, operating costs of nuclear power plants have changed very little. (Construction accounts for as much as three-quarters of the cost of nuclear generation.) Moreover, the rise in the price has prompted an exploration boom that will ultimately lead to more mines and greater supply. Uranium is not thought to be particularly scarce—it has simply not been very profitable to look for it recently.

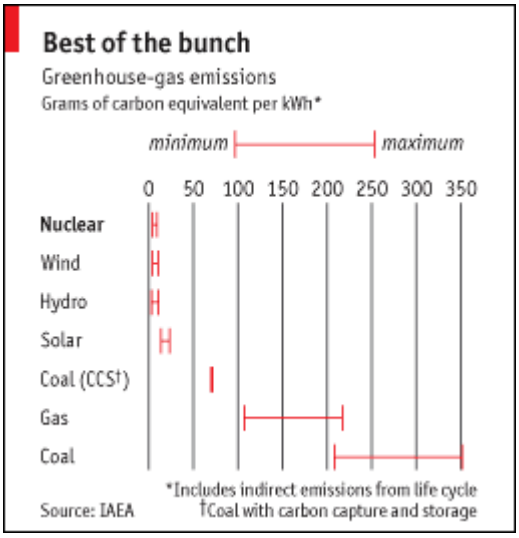
The latest generation of reactors, which evolved from models constructed in the 1970s and 1980s, include important improvements over prior designs. Westinghouse's new AP1000, for example, has “passive safety” systems that can prevent a meltdown during an emergency without operator intervention. If the reactor loses pressure because of a loss of coolant, for example, pressurised tanks

deliver water to the core, since the pressure in the tanks is higher than that in the core, explains Howard Bruschi, who has worked for Westinghouse since the 1960s and is now a consultant to the company. The new reactor's simplified design also means that fewer motors, pumps and pipes are needed, reducing not only the potential for mechanical errors, but also costs of maintenance, inspections and repairs. Westinghouse recently agreed to provide four new plants to China.

Soul of a new reactor

Meanwhile, Areva, a French nuclear company, is engineering ever more powerful plants. Its first reactor, which began operating in 1977, was rated at 900 megawatts; its latest model, the evolutionary power reactor (EPR), is a 1,600-megawatt design. The company has already begun building two such plants in Europe: one in Finland, which is now expected to start operating in 2011, about two years late, and another in France. Both the EPR and the AP1000, along with GE's latest design, are among the plants under consideration by American utilities.

A demonstration plant of a completely different type, a “pebble bed” reactor, is scheduled to be built in South Africa starting in 2009. Based on technology that originated in Germany, its design is unique in several ways. For one thing, its small size (165 megawatts) should make it comparatively fast and cheap to build; depending on power needs, several units sharing a single control room could be constructed on one site. And the uranium fuel is encapsulated in rugged “pebbles”, the size of tennis balls, which are designed to withstand a loss of coolant without disintegrating, making the reactor extremely safe. Andrew Kadak, a professor at the Massachusetts Institute of Technology (MIT), who has been developing a smaller, alternative pebble-bed design with his students, is convinced that “these reactors cannot melt down.”



Even though new designs for nuclear plants may be safer, they still generate toxic waste. After about three years of use, the fuel is depleted of most fissile uranium but has accumulated long-lived radioactive materials that cannot be burned in conventional reactors. At the moment most such waste is stored near the plant until it can be moved to a permanent facility. But no country is yet operating a final disposal site for highly radioactive nuclear waste. America's Yucca Mountain repository, for example, is not expected to be ready for use for many years, if ever. In some countries nuclear waste is “reprocessed”—a procedure in which plutonium is separated from the rest of the spent fuel, which can then be made into new fuel. Plutonium, of course, can be used to make nuclear weapons. Because of concern over nuclear proliferation, America has not engaged in civilian reprocessing since 1977.

As part of a new multinational initiative called the Global Nuclear Energy Partnership (GNEP), however, America's Department of Energy is supporting a type of spent fuel reprocessing which does not separate the plutonium from other highly radioactive materials in the waste, thus making it more resistant to proliferation than traditional reprocessing. This mixture of plutonium and other radioactive elements could then be turned into fuel suitable for use in “fast” reactors. Most reactors in operation today are called “thermal” reactors, because they use a moderator to slow down the neutrons and promote fission. Fast reactors, in contrast, do not employ moderators and use much faster neutrons to produce fissions. So they can consume many of the long-lived radioactive materials that thermal reactors cannot.

AP

They don't build them like they used to

This approach could extract far more energy from a given amount of nuclear fuel while at the same time reducing the volume and toxicity of nuclear waste. Proponents of fast reactors reckon that most of the remaining waste would need to be stored for only a few centuries, perhaps, rather than hundreds of thousands of years, once the most radioactive elements had been separated out. According to the Nuclear Energy Institute, a lobby group in Washington, DC, this could mean that America would need only one nuclear-waste repository. In the long term, a fleet of fast reactors could use nuclear fuel so efficiently that “for all practical purposes, the uranium would be inexhaustible,” says William Hannum, a nuclear physicist who used to work at America's Argonne National Laboratory.

But opponents of this strategy call it a distraction that could hinder the renewal of the nuclear power industry. For one thing, many new fast reactors and fuel-reprocessing facilities would have to be built, adding billions of dollars to the enormous sums already required for new nuclear plants. In addition, some of the technologies in question have not been demonstrated on a commercial scale yet. And the GNEP reverses America's ban on civilian reprocessing, which critics say could encourage the proliferation of weapons-grade materials.

In the end, the deployment of new nuclear reactors will depend on many factors, including successful waste and proliferation management, improved economics, and perhaps most important, convincing the public that nuclear reactors can be operated safely. Despite these obstacles, there is an undeniable mood of optimism in the industry. Whether that will be enough to spark the deployment of the hundreds of reactors that will be needed to help mitigate the effects of global warming remains to be seen, cautions Richard Lester, a professor of nuclear science and engineering at MIT. Were there to be another disaster like Chernobyl, or a successful terrorist attack on a nuclear plant, all bets would be off. But for now most people in the industry agree that nuclear power's prospects look brighter than they have in a long time.

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A patent improvement

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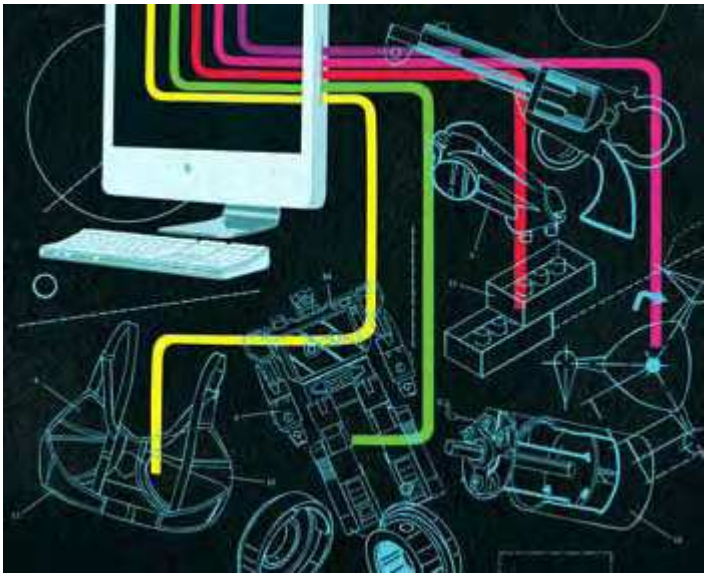
Intellectual property: A new scheme will solicit comments via the internet to improve the vetting of patent applications

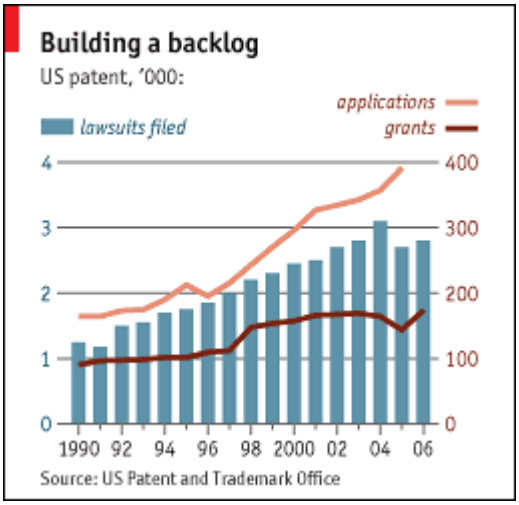
Lucy Vigrass



PATENT examiners, who scrutinise applications for patents and determine whether they ought to be granted or not, are used to poring over diagrams of complicated contraptions. But now the patent system itself, just as complex in its own way, is under increasing scrutiny.

The number of applications has soared in recent years, but patent offices have been unable to keep up—resulting in huge backlogs and lengthy delays. Standards have slipped and in America the number of lawsuits over contested patents has shot up (see chart). In an attempt to fix these problems, the United States Patent and Trademark Office (USPTO), Britain's Intellectual Property Office (IPO) and the European Patent Office are evaluating a radical change: opening the process up to internet-based collaboration.

The scheme, known as “Peer to Patent”, was created by Beth Simone Noveck, a professor at New York Law School. It applies an unusual form of peer review to a process which traditionally involves only a patent applicant and an examiner. Anybody who is interested may comment on a patent application via the internet. The scheme was launched as a one-year pilot programme in America on June 15th. Sean Dennehey of Britain's IPO, who sits on the project's advisory board, says his organisation will follow suit by the end of the year. The project is being supported by big technology firms including IBM, Microsoft and Hewlett-Packard.



An efficient patent system is essential for the promotion of innovation. Patents give inventors a temporary monopoly on a new idea in return for disclosing how it works, so that others can subsequently build upon it. But if a patent is granted for something that is not novel (people are already doing it), or is obvious (any Tom, Dick, or Harry in the field could think it up), it can hamper innovation by turning a widely used invention or process into one person's monopoly. The trouble is that examiners cannot always tell when a patent is unwarranted.

To prove that an invention is not novel, the patent examiner must find evidence that others have already

done everything claimed in the patent, a quest known as a “prior art” search. Prior art is also the basis for determining whether some new step claimed in the invention is obvious—and therefore not worthy of a patent. But prior art can be elusive. It might be buried in an obscure technical journal, in conference slides, or in a doctoral thesis tucked away in a university library. It could even be embodied in a machine taken off the market years earlier. Finding prior art is hardest in fields where patenting is fairly new, such as software, biotechnology, financial services and business methods.

Examiners are usually well versed in the technology they review and are adept at searching their office's collections of patents, along with other databases. But given the specialisation of modern science and technology, they cannot be expected to keep abreast of all the technical literature. To complicate matters further, says Jon Dudas, the director of the USPTO, patent applications have become more complex as well as more numerous: some applications contain thousands of claims. A biotech patent may be accompanied by gigabytes of computer data. And a quarter of the applications handled by the USPTO contain no references to prior art, adds Mr Dudas, while another quarter contain more than 25 references. This makes it hard for examiners to decide which ones deserve the closest scrutiny.

There have already been several attempts to overhaul the system. Court cases and regulatory changes have altered it in various ways in recent years, but this has not done away with the perception that the system is in crisis, nor silenced those calling for further reform. In “Innovation and its Discontents”, a book published in 2004, Adam Jaffe and Josh Lerner argue that some reforms have even made things worse. And “Patent Failure”, a forthcoming book by James Bessen and Michael Meurer, argues that America's system does inventors more harm than good. Other critics have called for the elimination of patents on software, business processes and human genes.

Several independent outfits already supplement the official patent-granting institutions. Among them is Patent Lens, run by CAMBIA, a non-profit research institute, which tries to make it easier to track down relevant patents in a particular field. Similarly, PatentFizz is a website that makes it easy to find out about particular patents, comment on them and even add references to prior art. In both cases the aim is to open the working of the patent system up to greater scrutiny.

Peer to Patent builds on these ideas, especially the notion that practitioners and researchers within a particular field collectively have all the relevant prior art at their fingertips already. All the patent office needs to do, therefore, is to get that community to tell it what it already knows. Peer to Patent does this using the latest web-based collaboration tools, such as voting and tagging, which can harness the collective knowledge of a large number of users.

The USPTO wants YOU

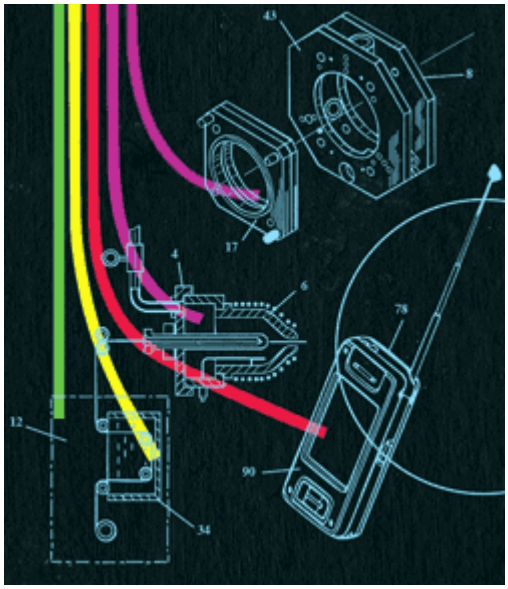
The USPTO's pilot scheme will scrutinise 250 patent applications in a handful of computer-related fields, with the approval of the applicants. The first examples have been submitted by IBM, Intel, Microsoft and other technology giants. The text of each application is posted in full for public scrutiny, and members of the public can sign up to participate in the review process. They can discuss each application in an online forum, suggest examples of prior art, and vote for the prior art they consider most relevant. Messages that are considered off-topic can be flagged, and there are plans to allow participants to rate each other, so that the most highly regarded participants' recommendations rise to the top of the pile.

Lucy Vigrass

Tagging, a common feature of many modern websites, is also used. Patents in new fields often sound like gobbledygook, since each inventor makes up his own terminology. But a user familiar with the field in question may realise that the invention matches something already in use under a different name. By adding an appropriate tag, that user can attract the attention of experts with a comprehensive knowledge of the field's prior art.

Eventually, the ten pieces of prior art that receive most votes in the Peer to Patent community perusing each patent are sent to the patent examiner. As with conventional patent applications, examiners will still choose which prior art is referred to in their decision on a patent application, known as an “office action”. But the community's explanations, discussion and examples will be taken into account.

The pilot Peer to Patent scheme allows examiners and volunteer participants to provide feedback to refine the process. A total of 18 measures will be used to assess the scheme and evaluate its effectiveness, including the number of items of prior art provided by the community that appear in office actions; the number of claims changed by applicants as a result of queries raised by the community; and the number of volunteer participants signed up, as well as their level of participation.



“The information provided should improve patent examiners' grasp of highly technical fields.”

Mr Dudas says he considers Peer to Patent to be a “natural step” in opening up the patent system and fulfilling its original goal of encouraging the publication of new ideas. In Britain, Mr Dennehey regards Peer to Patent as a more up-to-date way for the public to submit observations during a patent examination, something already permitted by law. (In America, third parties are allowed to submit only prior art without comments under the current system.) Patent lawyers are also intrigued. Mark Costello, general patent counsel at Xerox, an American document-management company, says the idea has merit, but that he will be watching closely to see “whether it remains a fair and objective system after competitors enter the process”.

The scheme's immediate impact is likely to be minimal. Patent applicants are free to ignore the online community's discussions and respond only to the office action, as they always have. But if Peer to Patent succeeds, “we will have made the most significant improvement to the patent system in decades, and done a great service to the public and the economy,” says Manny Schecter, a member of the project's steering committee and an intellectual-property lawyer at IBM.

The hope is that Peer to Patent will reduce both uncertainty for inventors and unnecessary lawsuits because dodgy applications will be uncovered and rejected quickly. This ought to mean that patents issued will be stronger, leading to fewer challenges by those required to license them. Indirectly, the scheme could also help innovators to commercialise their ideas, since stronger patents will make patent-holders' work more attractive to investors.

The information provided by the Peer to Patent community should also help patent examiners to improve their understanding of highly technical fields. Inventors and patent lawyers—who currently depend on the patent office's collection of patents and prior art when conducting prior-art searches—should gain, too.

For all that, some observers are sceptical about bits of the Peer to Patent process. They wonder whether people will really volunteer to provide examples of prior art, join discussions, and so on. Ms Noveck cites the widespread participation in other online communities—such as Wikipedia, a collaborative online encyclopedia—as evidence of the public's desire to contribute. But although everyone knows what an encyclopedia is, and the pages of Wikipedia can be edited with a few clicks, not many people understand the patent process, or know how to read a patent.

Another concern is that the people who take part in the project will represent vested interests—in particular, big technology firms which can assign staff to review patents. There are also worries about the possibility of tacit collusion among large patent-holders, who might attack individual inventors in order to keep them out of specific markets.

Ms Noveck, however, is a believer in grassroots democracy. If Peer to Patent's goal of cleaning up the patent system was not already audacious enough, she thinks the project could also serve as a demonstration that the public, helped by technology, can participate more fully in its own governance. Unfortunately, Peer to Patent suffers from the same vulnerabilities as other democratic institutions. If the public engages with it earnestly, it could produce marvellous results. But if people tire of it and cede control to special interests that do not align with the public interest, Peer to Patent could devolve into just another prop for the status quo. The project's outcome, at this early stage, remains uncertain. But it is surely worth a try.

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Borrowing from nature

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Clean technology: Architects believe that biologically inspired designs can help to reduce the environmental impact of buildings

Ideas worth stealing: the Arab World Institute

ARCHITECTS have long taken inspiration from nature. In ancient Egypt columns were modelled on palm trees and lotus plants, and building designers have borrowed the shapes and proportions of natural forms ever since as they strived to achieve aesthetic perfection.

Some architects now believe that such biomimicry has more to offer than simply making buildings look good. They are copying functional systems found in nature to provide cooling, generate energy and even to desalinate water. And they insist that doing these things using biomimetic designs is not just a gimmick, but makes financial sense. “It's often the case that green technology is considered to be commercially unattractive,” says Michael Pawlyn, an architect at Grimshaw, the firm behind the Eden Project, a highly acclaimed biome structure in England. That perception, he says, is wrong—and he has the designs to prove it.

So far, the use of biomimetic features in buildings has been driven as much by aesthetics as by function, and has been limited to relatively simple, passive systems. The Arab World Institute in Paris, for example, has an array of mechanical, eye-like irises on its south-facing façade. These open and close to control the amount of light entering the building, thereby regulating the internal temperature.

Similarly there are now several buildings that have ventilation systems based on those found in termite mounds. The Eastgate Centre, a shopping centre and office block in Harare, Zimbabwe, has a mechanical cooling system made up of vents and flues that help hot air out of the structure. “It's the same principle as the chimney effect, but a bit more controlled,” says Professor George Jeronimidis, director of the Centre for Biomimetics at the University of Reading. As hot air rises and flows out through vents at the top of the building, cooler air is drawn in at ground level.

Dr Jeronimidis is now taking this concept further by using adaptive materials that flex in response to the level of moisture in the air—an idea borrowed from the way pine-cones open and close. Using a cellulose-like fibre composite, he has created a vent that changes from one curved shape to another, depending on the relative levels of moisture inside and outside a building. When warm, moist air builds up inside the building, the vent opens to allow it to escape. But when the air inside is dry, the vent stays shut and moist air from outdoors is kept out. “In principle it can be made to respond naturally, without any additional power,” says Dr Jeronimidis.

Intelligent designs

Architects have become more interested in this sort of thing in recent years, he says, as greater attention is paid to the energy consumption and sustainability of buildings. Biology offers solutions to a range of

problems. “Nature has had the benefit of a pretty long R&D period,” says Mr Pawlyn, who hopes to take the exploitation of natural designs to a completely new level. His firm has borrowed a trick used by fog-basking beetles and in the nostrils of camels for a novel desalination plant.

When Grimshaw was given the brief to regenerate the Santa Catalina Isthmus, a narrow stretch of land on the coast of Las Palmas in Grand Canaria, the firm came up with the concept of a 3km (1.9 mile) promenade with a theatre and botanic garden as its focus. But rather than creating yet another drain on local resources the architects wanted the structure to be cooled and irrigated by natural means. “We decided to put forward a scheme that showed how the island could move towards self-sufficiency in water and energy, without relying on fossil fuels,” says Mr Pawlyn.

Ideas worth stealing: a rendering of the proposed Las Palmas Water Theatre (left); the Eden Project (right)

This meant finding a way to turn seawater into clean drinking water without expending too much energy. Fog-basking beetles, which are found in Namibia, have an ingeniously simple way of doing this. They hide underground during the day so that when they come out at night, their dark backs are relatively cool compared with the ambient night air. As moisture-laden breezes roll in from the Atlantic, the water in the air condenses on the beetles' backs (just as a cold bottle of beer left on a table causes water in the air to condense on its surface). The beetles simply have to tilt their bodies to make the water trickle into their mouths. A similar trick is also used by camels to prevent them losing moisture as they exhale. Moisture secreted through the nostrils evaporates as the camel breathes in, cooling the nostrils in the process. When the camel breathes out, moisture within the air then condenses on the nostrils.

Inspired by this, Mr Pawlyn and his colleagues have designed their theatre around the same principles. A series of tall, vertical evaporation “gills” are positioned so that they face towards the sea and the incoming coastal breeze. Warm seawater, taken from close to the surface, is pumped so that it trickles down these units. As the breeze blows through the gills some of the seawater evaporates, leaving salt behind. The clean, moist air then continues its journey until it encounters a series of vertical condensing pipes. These are kept cold by pumping deep-sea water, from 1,000 metres below the surface, through them. As the moist, warm air hits the pipes the water condenses and trickles down to be collected.

“You get a very powerful desalination effect,” says Mr Pawlyn. This system is able to supply enough water for the 70,000-square-metre complex. A traditional flash-distillation desalination plant consumes between five and 12 kilowatt hours (kWh) of energy per cubic metre of water. The biomimetic approach, however, requires just 1.6 kWh per cubic metre. And since the water pumps will be mostly powered by a wind turbine, driven by the same prevailing winds that provide the plant's airflow, the overall energy consumption of the site is reduced even further. In the process, the same system can also help to cool neighbouring buildings, says Mr Pawlyn.

Build me a rainforest

Although it is unclear whether this innovative project will go ahead, the principles have already been tested by Charlie Paton, an engineer who collaborated in the scheme. His organisation, Seawater

Greenhouse, has built pilot greenhouses that show this idea really works. The catch is that it will only work in certain climates, says Mr Pawlyn. “If you have a very dry and hot environment, the water readily evaporates.”

Nonetheless, Mr Pawlyn and his colleagues believe that biomimetic principles can be taken even further, to generate new income as well as reduce running costs and resource use. Natural ecosystems are restorative, notes Mr Pawlyn. “They operate in a closed loop made up of quite complex webs of different organisms,” he says. “Man-made structures tend not to do that.” Instead, man-made systems tend to be linear, consuming raw materials at one end and producing waste at the other. The result is a gradual depletion of natural resources.

In an effort to reproduce a closed-loop system, Grimshaw has developed a design for an indoor tropical rainforest. This botanical garden is designed to sit on an existing landfill site and be a completely carbon-neutral structure. For most of the year, heat to maintain the hothouse will be provided by solar heating through a glazed roof. During the colder months additional heating will come from landfill biomass. The building is designed to be flanked by a number of large vertical vessels into which biodegradable waste, originally intended for the landfill, will be tossed. As the waste breaks down in these large composting units, it reaches temperatures of up to 75°C, and this heats the indoor garden.

This building will not only be carbon-neutral but will also generate income, by providing the service of waste disposal. Some countries impose landfill taxes of as much as £20 ($40) per tonne of waste. The designers reckon that their proposed building could generate as much as £7m ($14m) a year by acting as a substitute for a landfill site. And in the true spirit of restorative closed-loops, the resulting compost can be sold for agricultural use.

“Buildings should be able to pay for themselves,” says Professor Julian Vincent, director of the Centre for Biomimetics at the University of Bath in England. At the moment, he says, most biologically inspired systems used in architecture are simply morphological. “This seems to me to lose the point of biomimetics,” he says. There is huge potential, but architects are only just beginning to learn how to apply biomimetics in a more functional way, says Michael Weinstock, director of the Architectural Association School of Architecture in London. Not only large projects but smaller homes and offices can benefit from the same principles, he insists. “One of our ambitions is to ensure that every building ought to be able to generate its own energy,” he says.

Bringing biomimetics home

This need not require elaborate new structures like Grimshaw's theatre or indoor rainforest. Biomimetics can be applied in simpler ways, too. Smart paints which use a self-cleaning principle borrowed from lotus leaves are now being tested. Once applied, the surface of the paint takes the form of densely packed ridges or bumps, just like the microscopic bumps found on lotus leaves. A property of such tiny bumps is that they prevent drops of water from spreading out: the drops simply roll off the surface instead, taking dirt with them. (Self-cleaning glass relies on a similar principle.) And organic solar cells, which mimic photosynthetic processes to capture light and convert it into electricity, are arguably a form of biomimetic technology, too.

“Part of the challenge, I believe, is to reconnect people with resources,” says Mr Pawlyn. He makes a strong case that borrowing architectural ideas from nature can help to reduce the environmental impact of buildings. In the process, it may also encourage people to view natural systems with greater respect, in more ways than one.

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Jolly green heretic

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From The Economist print edition

Stewart Brand, a pioneer of both environmentalism and online communities, has not lost his willingness to rock the boat

Illustration by Andy Potts

IN SOME respects Stewart Brand's green credentials are impeccable. His mentor was Paul Ehrlich, an environmental thinker at Stanford university and author of “The Population Bomb”, published in 1968. That book, and the related Club of Rome movement of the 1970s, famously predicted that overpopulation would soon result in the world running out of food, oil and other resources. Though it proved spectacularly wrong, its warning served as a clarion call for the modern environmental movement.

Mr Brand made his name with a publication of his own, which also appeared in 1968, called “The Whole Earth Catalogue”. It was a path-breaking manual crammed with examples of small-scale technologies to enable individuals to reduce their environmental impact, and is best known for its cover, which featured a picture of the Earth from space (which Mr Brand helped to persuade America's space agency, NASA, to release). The book became a bestseller in anti-corporate and environmental circles. In 1985 Mr Brand co-founded the WELL, a pioneering online community that was a precursor of today's social-networking websites such as MySpace and Facebook.

Mr Brand still has a following among the Birkenstock set, and even lives on a tugboat near San Francisco. But meet him in person and it becomes clear he is not exactly your typical crunchy-granola green. Sitting down to lunch at a posh beach resort on Coronado Island, off San Diego, he does not order a vegan special but a hearty Angus burger with bacon, cheese and French fries, and a side-order of lobster bisque. “I'm genetically a contrarian,” he says with a broad smile.

Three unpopular ideas

That is pretty evident from his recent proclamations. Rather than basking in past glories or sailing off to a quiet retirement, the 68-year-old counter-cultural icon remains determined to rock the boat. But this time his target is the environmental movement itself. He has come up with a series of what he calls “environmental heresies”, which he hopes will influence a new generation of pragmatic, problem-solving greens. Three things that most greens vehemently oppose—genetic engineering, urbanisation and nuclear power—should, he believes, be embraced on environmental grounds.

Start with genetic engineering. Many greens object to the idea, fearing a deluge of “Frankenfoods” and the contamination of pristine wild species. But Mr Brand points to the work of Norman Borlaug, the Nobel prize-winner who proved the Club of Rome (and Mr Brand) wrong with his “green revolution” in agricultural productivity. Mr Brand now sees great promise in using genetic science to feed the world, and perhaps prevent future wars, by making crops that are more disease-resistant, drought-tolerant and produce higher yields.

Similarly, he argues that urbanisation can be good for the environment. Mankind has now become a primarily urban species for the first time in its history, and every serious forecast predicts a surge in the size and number of megacities. Most environmentalists are dismayed at this trend, and worry about the implications of urbanisation for air pollution, resource consumption and so on. But Mr Brand bluntly rebuts them, insisting that megacities “will increase the Earth's carrying capacity for humans”.

That may seem an odd argument from a man who wrote a guide to natural living and going “off grid”, but it reflects another aspect of the maturation of his views. Cities are good for the planet, he argues, because they are engines of wealth creation, and greater prosperity makes promoting greenery easier.

When poor people move from bleak subsistence farming to the economic opportunities found in urban slums, he insists, they no longer need to chop down endangered trees or eat bush meat. “Nature grows back,” says Mr Brand. He also believes cities unleash innovation—pointing to the use of mobile phones in slums to send money—and reckons the next big trend will come “not from Japanese schoolgirls, but slum-dwellers in Africa”.

Mr Brand's critics accuse him of romanticising the potential of megacities. But his support for the revival of nuclear power is even more controversial. For years, he held the orthodox environmental view that nukes were evil. He now confesses that this was merely “knee-jerk opposition”, and not a carefully considered opinion. His growing concern about global warming, which he calls “the single most important environmental threat facing mankind”, explains his U-turn in favour of this low-carbon but hugely controversial source of electricity.

The turning point came, he says, when he visited Yucca Mountain, a remote site in the Nevada desert where American officials plan to bury the country's nuclear waste. He was visiting the site as part of his Long Now project, which aims to build a “clock” that will last 10,000 years or more in the hope of encouraging society to think about very long-term issues. While studying the deep hole in the ground at Yucca for tips on building his clock—the site, like the clock, is being designed to survive unscathed for thousands of years—he had an epiphany.

Although greens and other anti-nuclear activists oppose the Yucca Mountain project, Mr Brand says he realised that “we are asking the wrong question” about nuclear power. Rather than asking how spent nuclear fuel can be kept safe for 10,000 to 100,000 years, he says, we should worry about keeping it safe for only 100 years. Because nuclear waste still contains an enormous amount of energy, future generations may be able to harness it as an energy source through tomorrow's better technologies.

His embrace of nuclear power was another surprising about-face, and plenty of energy experts, including some of his close friends, disagree with him. One of them is Amory Lovins, the head of the Rocky Mountain Institute, a natural-resources consultancy. Mr Brand recalls attending Mr Lovins's wedding many years ago in an American Indian sweat tent, where Mr Lovins and his (now ex) wife Hunter exchanged hunting knives in a traditional ceremony. Mr Lovins argues that the economics of big nuclear power plants make no sense, and that the future belongs to energy efficiency and small-scale, distributed “micropower” plants based on renewable energy sources.

That friendly debate points to some awkward aspects of Mr Brand's self-styled environmental heresy. For one thing, the decentralised approach to power generation advocated by Mr Lovins seems more in tune with the do-it-yourself ethos of “The Whole Earth Catalogue” than the big nuclear power plants now championed by Mr Brand. And Mr Brand's argument for taking a more short-term view of nuclear safety seems to fly directly in the face of his Long Now project, which is intended to promote a more long-term perspective.

“Environmental change changes everything, including environmentalism itself.”

The apparent contradiction is made more glaring by the fact that Mr Brand has made a tidy packet from long-term planning through his Global Business Network (GBN), a respected scenario-planning and futurology outfit. Some greens grouse that GBN's work with big oil companies and the American military is unethical, but Mr Brand has little patience for such narrow-mindedness. “Saying all companies are evil is like saying all greens are romantic twits,” he says. “You need to discriminate!” To bolster his point, he points to what he calls the quiet but influential role that Royal Dutch/Shell played in South Africa's peaceful end to apartheid. He also defends his military clients with vigour, noting that they are often “more serious” and “longer-term thinkers” than business clients.

So how does he respond to the apparent conflict between the long-termism of the Long Now project and the much shorter-term view of nuclear waste he uses to justify new nuclear power? He neatly sidesteps the contradiction. “Coal and carbon-loading the atmosphere are much bigger problems for the future than nuclear waste, which is a relatively minor risk,” he says.

Shades of green

This willingness to get his hands dirty and balance one risk against another, rather than clinging to ideologically pure positions when confronted with difficult choices, sets Mr Brand apart from the many ideologues in the environmental movement. Indeed, he proudly calls himself an “eco-pragmatist”. He argues that two ideological camps have dominated the green movement for too long: “the scientists and

the romantics". The former group has been stuck in the ivory tower, while the latter has held on to noble but impractical views that, he reckons, have often been contrary to rational scientific thinking. The grip that these two rival camps have had on environmentalism, he says, explains its malaise.

But growing public awareness of climate change and other green concerns promises to end this. "Environmental change changes everything," he insists, "and among the biggest change of all will be in environmentalism itself." As environmental issues have moved up the technological agenda, says Mr Brand, there has been a large influx of engineers into the environmental movement. These "techies" had previously been deeply sceptical of greenery, but he now thinks they may save the cause even as they save the planet. Unlike the romantics and the airy scientists, he says, "engineers focus on solving problems."

He points approvingly to Elon Musk, a South African technology entrepreneur, and his green engineers at Tesla Motors, an electric-car firm. Mr Brand also tips his hat toward Mr Lovins, whom he praises as an early example of a problem-solving "engineer" (he is actually a physicist by training) who embraced the green cause. But this new generation of green engineers will only be able to transform the environmental movement, Mr Brand reckons, if the old guard allows it to. "Let's see if there is an allergic reaction to this infusion or real progress," he quips.

Mr Brand's own pragmatism can be seen in his willingness to own up to his mistakes and learn from them. When his alarmism over the Y2K computer bug turned out to be wrong, for example, it made him realise that his own personal computer was a poor proxy for the world at large, which is "modular, shockproof and robust". And the key mistake made by the Club of Rome's forecasts (which he calls "self-defeating prophesies"), he now acknowledges, was to see the world as static, and to place too little faith in the possibilities of technological progress.

His critics might argue that Mr Brand now places too much faith in clever engineers and fancy technology to solve the world's environmental problems. But he can respond that his pragmatic approach goes back a long way, and has deep roots. As he put it in the introduction to "The Whole Earth Catalogue", written four decades ago: "We are as gods and might as well get good at it."

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Business and society

In search of the good company

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Illustration by David Simonds

The debate about the social responsibilities of companies is heating up again

IF YOU believe what they say about themselves, big companies have never been better citizens. In the past decade, “corporate social responsibility” (CSR) has become the norm in the boardrooms of companies in rich countries, and increasingly in developing economies too. Most big firms now pledge to follow policies that define best practice in everything from the diversity of their workforces to human rights and the environment. Criticism of CSR has come mostly from those on the free-market right, who intone Milton Friedman's argument that the only “social responsibility of business is to increase its profits” and fret that business leaders have capitulated to political correctness. But in a new twist to the debate, a powerful critique of CSR has just been published by a leading left-wing thinker.

In his new book, “Supercapitalism”, Robert Reich denounces CSR as a dangerous diversion that is undermining democracy, not least in his native America. Mr Reich, an economist who served as labour secretary under Bill Clinton and now teaches at the University of California, Berkeley, admits to a Damascene conversion, having for many years “preached that social responsibility and profits converge over the long term”. He now believes that companies “cannot be socially responsible, at least not to any significant extent”, and that CSR activists are being diverted from the more realistic and important task of getting governments to solve social problems. Debating whether Wal-Mart or Google is good or evil misses the point, he says, which is that governments are responsible for setting rules that ensure that competing, profit-maximising firms do not act against the interests of society.

One after another, Mr Reich trashes the supposed triumphs of CSR. Socially responsible firms are more profitable? Nonsense. Certainly, companies sometimes find ways to cut costs that coincide with what CSR activists want: Wal-Mart adopts cheaper “green” packaging, say, or Starbucks gives part-time employees health insurance, which reduces staff turnover. But “to credit these corporations with being ‘socially responsible' is to stretch the term to mean anything a company might do to increase profits if, in doing so, it also happens to have some beneficent impact on the rest of society,” writes Mr Reich.

Worse, firms are using CSR to fool the public into believing that problems are being addressed, he argues, thereby preventing more meaningful political reform. As for politicians, they enjoy scoring points by publicly shaming companies that misbehave—price-gouging oil firms, say—while failing to make real changes to the regulations that make such misbehaviour possible, something Mr Reich blames on the growing clout of corporate lobbyists.

What will CSR advocates make of this? Few will dispute that government has a crucial role to play in setting the rules of the game. Many will also share Mr Reich's concern about the corrosive political power of corporate money. But Mr Reich has it “exactly backwards”, says John Ruggie of Harvard University. If citizens and politicians were prepared to do the right thing, he says, “there would be less need to rely on CSR in the first place.”

Thoughtful advocates of CSR also concede that companies are unlikely to do things that are against their self-interest. The real task is to get them to act in their enlightened long-term self-interest, rather than narrowly and in the short term. Mr Reich dismisses this as mere “smart management” rather than social responsibility. But done well, CSR can motivate employees and strengthen brands, while also providing benefits to society. Understanding and responding to the social context in which firms operate is increasingly a source of new products and services, observes Jane Nelson of the Prince of Wales International Business Leaders Forum. Telling firms they need not act responsibly might cause them to under-invest in these opportunities, and to focus excessively on short-term profits.

Intriguingly, Mr Reich looks back fondly to what he calls the “not quite golden age” in America after the second world war when firms really were socially responsible. Business leaders believed they had a duty to ensure that the benefits of economic growth were distributed equitably, in contrast to their modern counterparts, argues Mr Reich. What changed? Back then, big American firms enjoyed the luxury of oligopoly, he says, which gave them the ability to be socially responsible. Today's “supercapitalism” is based on fierce global competition in which firms can no longer afford such largesse.

Lenny Mendonca of McKinsey takes a different view of the post-war period. After the war business leaders realised it was in their enlightened self-interest to rebuild the global economy and reinvent the social contract, he says, and there is a similar opportunity today, given problems ranging from climate change to inadequate education, where firms' long-term self-interest may mean that they have an even greater incentive to find solutions than governments do. Certainly, in America, business leaders are advocating government action on education, climate change and health-care reform that is neither zero-sum nor short-termist, and which, indeed, may not differ much from Mr Reich's own preferences.

Though his book hits many targets, both bosses and CSR activists are likely to dismiss it as fundamentally unworldly and to agree with Simon Zadek, the boss of AccountAbility, a CSR lobby group. “The ‘whether in principle' conversation about CSR is over,” he says. “What remains is ‘What, specifically, and how?'”

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Business in France

Beyond Suez

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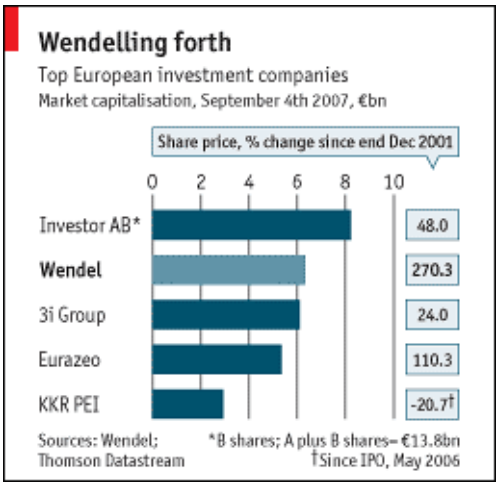
This week French capitalism showed its two very different faces

THE 18-month impasse over the merger between state-owned Gaz de France (GDF) and Suez, a Franco-Belgian utilities group, came to an end on September 3rd after three phone calls between the French president Nicolas Sarkozy and leading Suez shareholders. These helped cement a compromise in which the Suez board agreed to float its environmental-services arm (as Mr Sarkozy insisted), so that the rest of Suez could then merge with GDF. The merged firm will keep 35% of the environment business and a shareholders' pact will give it a control over fully 47% of the company. Meanwhile, the French state will end up owning about 40% of GDF Suez, once stakes held by two other state-owned firms, Areva and CDC, are counted. No wonder Eric Knight of Knight Vinke Asset Management, an investment fund, said this week that the real boss of GDF Suez resides in the Elysée Palace.

Yet there was also evidence this week of a very different style of French capitalism, as Renault-Nissan announced a deal to build low-cost cars in Morocco and PSA Peugeot Citroën outlined a recovery plan that places a new focus on emerging markets such as China. An even more striking example of the embrace, by some French firms at least, of dynamic modern capitalism comes from a firm once synonymous with French heavy industry that has lately reinvented itself as an investment fund. Wendel, born of the old Marine-Wendel group, is now Europe's second-biggest investment group—behind Sweden's Investor, but ahead of Britain's 3i and the European arm of KKR (see chart).

Infographics



On September 3rd Wendel formally reported a 23% increase in profits for the first half of 2007; its net asset value has grown by 31% on average in each of the past five years, and has been only slightly dented by the recent market turmoil. Its growth followed a spring clean, starting 2002, in which it sold stakes worth €2.3 billion ($2.6 billion) in CapGemini, Valeo and other firms. It now focuses on eight investments which it controls or owns outright.

Its biggest wholly owned subsidiary is BureauVeritas (BV), a certification and assessment consultancy that rivals the world leader, the Swiss SGS group. Wendel's second-largest holding is in Legrand, an electrical group it bought into with KKR in 2002. Legrand was floated last year, but Wendel retained a 30% stake. A similar strategy is planned for BV, in part to increase its visibility as it seeks to expand and become the industry leader.

Jean-Bernard Lafonta, Wendel's chief executive, says he is watching to see what happens in the financial markets before proceeding with the planned flotation of BV. He is also on the lookout for bargains if the markets keep falling. Wendel has some advantages at a time like this. It is a listed company that behaves like a private-equity firm, using its own capital rather than borrowing. This gives it access to cheaper and more flexible financing at a time when the banks are holding back.

But Mr Lafonta is adamant that Wendel will steer clear of any entanglements with the state. “We avoid companies dealing with the state,” he says, “because the state is interested only in political advantage, not creating value.” That is a clear warning to investors in Suez, whose pursuit of an ambitious merger has landed them in bed with the government. The privatisation of GDF has arguably resulted in the part-nationalisation of Suez.

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Corporate history

Past rites

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How companies can benefit from looking backwards as well as forwards

HISTORY is more or less bunk, declared Henry Ford in 1916. The company that bears his name is not so dismissive of the past. Ford's website has a prominent heritage section captioned “Automotive history begins here”; visitors can also call up a splashy site created to celebrate the carmaker's centenary in 2003. Ford is not alone in seeking to capitalise on its history. Bruce Weindruch, founder of The History Factory, a “heritage management” firm that helps companies to document and exploit their past, says that his firm is growing by 30-40% annually.

Some companies are more creative in their use of history than others. HSBC's History Wall, a striking art installation at the bank's London headquarters, is made up of 3,743 images drawn from the bank's archives and arranged in chronological order. Wells Fargo, a bank founded in 1852, plays heavily on its role in the development of the American West. It runs nine free museums that tell the story of its expansion and has a fleet of 21 reproduction stagecoaches that appear in some 900 parades and community events every year.

Even these activities are dwarfed by those of two other American classics, Coca-Cola and Harley-Davidson. In May Coca-Cola opened a new corporate museum in Atlanta, Georgia, that is expected to pull in more than 1m visitors annually, paying up to $15 each. Attractions include the first Coke cans to go into space, a functioning bottling line and a tasting lounge. Harley-Davidson is due to open a $75m museum in its hometown of Milwaukee, Wisconsin, in 2008. Exhibits include Elvis Presley's motorcycle and a 13-foot-long bike known as King Kong. The firm is expecting 350,000 visitors a year.

The benefits of knowing your corporate history can be very practical. Disney constantly mines its archive of old films, observes Christopher McKenna of Said Business School. Carmakers have overhauled old designs for the modern era: Volkswagen's New Beetle and the new Fiat 500 are obvious examples. Stacey Schiesl, director of the Harley-Davidson museum, says designers use the company's collection of historic bikes as inspiration for new products.

But the bigger payoff tends to be less tangible—that of forging stronger bonds with customers and employees. Age can by itself confer a sense of trustworthiness: brewers and bankers are fond of flaunting deep roots. Jim Gilmore, co-author of “Authenticity”, a forthcoming book, argues that history is also vital in giving companies a genuine sense of personality. Ritz-Carlton's use of cobalt-blue glasses in its hotel dining rooms can be traced back to Boston in the 1920s, for example, where window glass that had been imported from Europe and turned blue in the New England air was a symbol of wealth. Rather than commissioning dusty biographies to mark anniversaries, Mr Gilmore reckons that firms should trawl the archives for emblematic stories of this kind.

Younger companies can use history, too. Before giving up their old jobs, the founders of innocent, a British drinks firm formed in 1998, sold an initial batch of smoothies from a market stall in London. They asked customers to put their empty bottles into one of two labelled bins to indicate whether they should focus on their new venture or stick to their day jobs. The rest, as they say, is history; the firm now uses the story to illustrate its folksy image.

Pliable though this sort of history must seem to purists, companies still cannot dodge difficult episodes in their pasts. Transparency is a must. Union Carbide, a chemicals firm, has a link to information on the deadly Bhopal gas leak in India on its home page, for example. Far more prosaically, Coca-Cola does not shy away from the failed introduction of New Coke in 1985. “It's like kids looking at the dirty words in a dictionary,” says Mr Weindruch: people will notice if the awkward bits are missing.

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Consumer electronics

And in the Blu corner...

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The fight heats up between the two high-definition video-disc formats

ARE consumer electronics from Venus or Mars? Visitors this week to IFA, a big industry trade show being held in Berlin, might have been forgiven for thinking that gadgets are increasingly from the female planet, given the round forms, soft light and muted colours that dominated the scene. Philips, a Dutch electronics firm, is even moving into the field of jewellery, with a collection of headphones and memory sticks decorated with crystals.

Yet backstage the goings-on were still distinctly masculine. Dark suits rushing through corridors, posturing at packed press conferences, aggressive product announcements: the show was the staging ground for the latest battle in the war between two rival formats, HD DVD and Blu-ray, which are vying to become the standard for high-definition video-discs.

Format wars have been around for decades: Thomas Edison favoured phonograph cylinders, but lost out to discs. Most famously there was the fight between VHS and Betamax video-cassette formats in the 1980s, in which VHS prevailed. Even when firms agree on a common standard before going to market, negotiations can be difficult. With the compact disc, which recently turned 25, Ludwig van Beethoven was enlisted to create the necessary harmony. Sony, a Japanese electronics giant, insisted that the composer's ninth symphony had to fit on the new disc. This meant making it slightly larger, which is said to have neutralised a manufacturing advantage Philips would otherwise have had.

For the digital versatile disc (DVD), the industry also managed, in 1995, to agree on a common format that was a compromise between two rival proposals. But when it came to the DVD's high-definition successor, two camps emerged once again, and attempts to broker a compromise failed. Many Hollywood studios backed Blu-ray, developed by Sony, because of its larger capacity. But Toshiba, which had spent large sums developing the HD DVD format, refused to give in.

For a long time Blu-ray has looked like the most likely winner, even though the discs are slightly more expensive to produce and the players cost more. That is because it has broader industry support, including the backing of four of the biggest Hollywood studios. But on August 20th two studios, Paramount Pictures and DreamWorks Animation, said they would no longer support Blu-ray and would henceforth release films (such as “Transformers”) exclusively on HD DVD.

Those in the Blu-ray camp claim this is a sign of impending victory: Paramount defected, they claim, in return for a payment of $150m from the Toshiba camp, which shows how desperate it has become. Whether or not this is true, the move broke Blu-ray's lock on blockbuster content, so the price of players will now become more of an issue, argues J.P. Gownder of Forrester, a consultancy. Consumers do not want to pay much more than $200, he says, a level HD DVD players will soon reach; Blu-ray players still cost twice as much.

It is difficult to draw conclusions from sales figures so far, which allow both sides to claim leadership. Blu-ray discs outsell HD DVD discs by two to one in America, but the ratio is reversed when it comes to standalone players. (That may be because Blu-ray discs can also be played on Sony's PlayStation 3 games console, which doubles as a Blu-ray player.) Even so, the Blu-ray camp is still confident that it will win. “I think the war is virtually over,” says Sir Howard Stringer, Sony's chief executive.

Yet the rise of video-on-demand and download services may mean that neither standard will achieve critical mass. That would not mean an end to standards wars: even if discs are replaced by downloads, the focus may simply shift to rivalry between software standards. “I cannot imagine a world without such battles,” says Rudy Provoost, the boss of Philips' consumer-electronics division. But if they were not fighting over formats, says Mr Provoost, companies would be able to devote more effort to making their products attractive and easy to use: less Martian and more Venusian, in other words.

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Business jets in Asia

Hot tickets

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A vast new market for private jets is finally starting to open up

TO HAVE an important job in Asia is to spend too much time in the air. The economic health of Hong Kong and Singapore is tied so strongly to the quality of their airports and their positions as transport hubs that both could justifiably use a rolling suitcase as their city logos. All this traffic has been handled by commercial airlines, which have been growing fast. In China alone, air traffic is expanding by 40% a year, according to Wang Changshun, the country's vice-minister for civil aviation, who was speaking on September 3rd at the Asian Aerospace Congress, a big industry conference taking place in Hong Kong. Things are picking up even in countries, such as Vietnam, that were aviation backwaters only a decade ago. Boeing and Airbus foresee total sales of 5,500-7,200 airliners in Asia in the next 20 years.

But left out from this Asian bonanza have been the makers of business aircraft—the $10m-55m machines that seat up to a dozen people and are the signature toys of American executives. That now appears to be changing, however, and like many business shifts in Asia it may be changing with extraordinary speed. Just as Mr Wang was offering his predictions, deals were unfolding not far away in a corner of Hong Kong's airport where a new hangar, the airport's second, opened for private jets.

Hong Kong's first private-jet hangar opened in 1998 to no demand. Five years ago there were only two planes in residence. Now there are 15, talks about more and plans for a third hangar. Just outside the new hangar's huge door, bosses from Dassault Falcon, Bombardier and Hawker Beechcraft were parked in the comfortable executive offices of their choicest planes as they received clients. When a Hawker was temporarily left empty with its door open, the wife of one of the region's billionaires stole up the ramp and posed in the aisle as her assistant snapped a picture—an auspicious sign for sales.

Boeing was there too, though it could not be bothered to send a display model. In May it announced the sale of a privately configured 787 Dreamliner, its newest plane ($153m without an interior). Unusually in the secretive world of private jets, the buyer is known: Joseph Lau, a property tycoon with interests in Macau, Hong Kong and China. One possible explanation for the announcement is that Mr Lau is thought to have plans for a business providing jets to Asian clients who, in the order of things, want to stay private.

Yet the creation of an Asian market for private jets faces many obstacles. America has 550 airports that can handle big commercial airliners, and perhaps 10,000 that can handle smaller planes. China, in contrast, has 126 airports, only 57 of which can handle private planes. Getting hold of landing slots is difficult. India is a bureaucratic nightmare. Japan requires two weeks' notice, which may be why Japanese firms love to use private planes, but only outside Japan: Toyota's corporate-aviation operation is based in California. There are cultural barriers, too. Manufacturers say that in the past Asian buyers have been sensitive about buying something as costly as a plane.

But the region's huge prosperity means things are changing. Landing slots, once impossible to get in China, can now apparently be had in a day. Indonesia, Malaysia, Singapore, Macau and Hong Kong are all happy to accommodate business jets, with South Korea providing a helpful way round the restrictions on direct flights between Taiwan and mainland China. Charter operators have begun to emerge in Macau, Shanghai and Beijing, among other places. And now that a few tycoons have planes, others want them. Indeed, it appears that the biggest problem today is supply, not demand. Dassault and Bombardier are taking orders for two to three years out, and Boeing says the soonest a new plane can be delivered is 2012.

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Mobile television

Screen test

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Lessons from South Korea's experiment with mobile TV

RIDE on the Seoul metro or take a bus around the city's streets and you will see passengers gazing at their mobile phones with rapt attention, earplugs firmly in place. They are watching television. Since the first services were launched in 2005, mobile-TV services have garnered over 7.5m customers. The signals are delivered via terrestrial and satellite broadcasts, a far more efficient approach than sending individual data streams to each viewer's handset, as is mostly done in other countries.

Of the 6.3m users of the terrestrial service, which is free, about one-third watch on their phones, and the rest on screens installed in motor vehicles or on other portable devices. Another 1.2m people watch the satellite service, which costs about $11 a month. The government predicts that by the end of next year the number of terrestrial customers will reach 10.8m and the number of satellite subscribers will grow to 2.8m. In other words, more than one-quarter of the population will be tuning in.

SK Telecom, the biggest mobile operator, has been pushing the satellite service, which is offered by its subsidiary, TU Media. It has spent about $435m on the service so far and needs 2.5m subscribers to break even, says Kwang Heo of TU. Its customers are mostly sports-loving young men. Soap operas and variety shows were at first available only with a time delay, but in July TU struck a deal with MBC, Korea's biggest private broadcaster, to provide a live feed.

Meanwhile SK Telecom's two main rivals, KTF and LG Telecom, have been pushing the free terrestrial service. Although it cannot charge for it, KTF hopes that mobile TV will bring in new customers and enable it to sell more expensive handsets and service plans. Soap operas and news bulletins are the most popular programmes, it says. Providers of the terrestrial service grumble that advertising revenue does not yet cover their costs. MBC says there need to be 10m terrestrial users for its dedicated mobile-TV channel to break even. The clear winners in all this are the handset-makers, Samsung and LG, which have been able to sell lots of pricey new phones, says Ahn Taegho of MBC.

But even if mobile TV does prove successful in South Korea, it does not necessarily bode well for similar services elsewhere. Its rapid rise in South Korea is largely due to the government, which set technology standards, allocated spectrum and insisted on a free terrestrial service to promote uptake, thus kick-starting the market—none of which is likely to happen in Europe or America.

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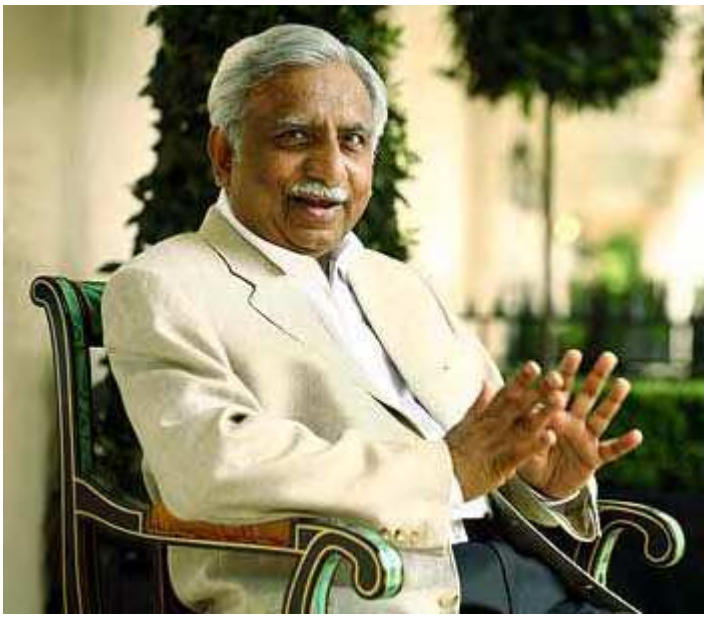
Face value

Taking flight

Sep 6th 2007
From The Economist print edition

The Guardian



Naresh Goyal wants Jet Airways to be India's first global brand—and to escape its domestic market

IT IS not only a lust for power that inspires Naresh Goyal, the founder and chairman of Jet Airways, India's biggest private airline. Nor is it a need for vindication, important though this may be to a man whose application to fly to America was held up for two years by allegations of terrorist connections. Like many Indian entrepreneurs, Mr Goyal says he has a patriotic dream. “I want to produce a global Indian brand,” he says. “That's the passion for me, that's what drives me. The people of this country, we have the capability to produce a global brand.”

Jet, with its orange and blue logo, may well be the first. It is the only private Indian carrier flying long-haul routes—ferrying 23% of passengers between India and London, for example. On August 5th its first plane landed in America, launching a daily service from Mumbai to Newark via Jet's new hub in Brussels, and this week it began flights to Toronto. A new direct service between Mumbai and Johannesburg will be launched soon, and with 40 new planes on order, Jet will add more destinations next year, including San Francisco (via Shanghai) and Chicago. Mr Goyal, who owns 80% of the airline, predicts that by 2009 its international operations will contribute half its annual revenues, increasing them from $1.7 billion last year to $3 billion.

Mr Goyal started out as a travel agent acting for foreign airlines in India. At industry gatherings, he became known for having committed the world's flight schedules to memory. He has since lost none of his taste for detail. Last month Mr Goyal ordered Jet's top managers in Mumbai and Delhi to “adopt a plane”, which they must periodically check to be sure it has been properly cleaned. (Mr Goyal says he would love to do the same himself, but does not have time.)

The international expansion is partly about healthy demand. Over the past five years air traffic to America from India has grown faster than from anywhere else, increasing by 23% in the year to May compared with the previous 12 months. Coming the other way, the number of inbound passengers to India grew by 19% in 2006. By Mr Goyal's estimate, up to 80% of these passengers are of Indian origin, though now resident in Canada, America and Britain. So that is where he is expanding. “I want to operate where there is a captive market, and there are 30m Indians overseas—or, whatever, people of Indian origin,” he says, with a flick of his hand, suggesting he does not see the distinction. If these

people do want to fly Indian, they may well want to fly Jet. Its service is outstanding. Air India, the state-owned carrier, is crummy by comparison, though it is improving.

But the expansion is also about escaping the dreadful conditions in India's domestic market. As well as having the fastest-growing aviation market in the world, India also has one of the most crowded. In 2003 the emergence of several low-cost carriers led to a price war. At the time, Jet controlled almost half the domestic market. Mr Goyal says Jet remained profitable during the struggle that has since ensued, but there is no hiding how much it suffered. Its market share has fallen to one-third—and that includes the custom of Air Sahara, a carrier acquired by Jet in April for $346m that it has since rebranded as a low-cost carrier, called JetLite. And in the past four years the main Indian stockmarket index has increased five-fold, yet Jet's share-price has fallen by 40% since its flotation in 2005.

Mr Goyal estimates that the Indian industry lost $500m last year. After some consolidation, prices are starting to rise. Nevertheless, despite his experiment with JetLite, Mr Goyal says low-cost carriers are not feasible in India. The country lacks the infrastructure and readily available skills to be had in Europe. “Here there are no alternative airports,” he says. “India has nothing called low-cost, only low-fare and low-margin. This is irrational pricing which will make the whole industry sick.”

So by expanding abroad, Mr Goyal hopes to escape his troubles—and his competitors—at home. Seats on domestic flights, such as between Mumbai and Bangalore, are sold abroad at premium prices. Inside India they are often sold at a loss. Moreover, India's other private airlines are not yet licensed to fly internationally. For that, airlines must have been in business for five years, which bars Jet's rivals. (That includes Kingfisher Airlines, launched in 2005 by Vijay Mallya, a flamboyant brewer. It too has global ambitions and excellent service—dished out by an all-female crew wearing distinctive tight-fitting red skirts.)

Although Mr Goyal does not think much of the low-cost business model, he admires his rivals in one way. In May 2005 Jet's application for a licence to fly to America was held up after a firm based in Maryland, also called Jet Airways, accused Mr Goyal's company of being a money-laundering outfit for al-Qaeda. Mr Goyal says some of his local competitors were behind the claim, which was later withdrawn. But he seems to have a sneaking admiration for the imaginative way in which they allegedly tried to impede him. “It's good, no? They dine and wine with me, we enjoy a cocktail together,” he says, erupting into a high-pitched giggle that punctuates his rapid speech. “Indians are very creative.”

A sprinkle of stardust

And so, for that matter, are a striking number of Jet's directors. They include several actors and musicians, including Bollywood's biggest star, Shah Rukh Khan. Mr Goyal denies, with a giggle, that these celebrities have been recruited to add glamour. “No, they add value,” he insists. “Shah Rukh, he's very clever.”

Yet their presence fits Mr Goyal's taste for networking. Striving to build India's first global brand apparently means mixing with India's other new billionaires, such as Lakshmi Mittal, a steel magnate, and Mukesh Ambani, of Reliance Industries, India's biggest private company. All of them, he says, have the same patriotic obsession: “making India great”. So is that all they talk about? “No,” Mr Goyal wheezes. “We talk about girls.”

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Nuclear power

Atomic renaissance

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From The Economist print edition

America's nuclear industry is about to embark on its biggest expansion in more than a generation. This will influence energy policy in the rest of the world

Illustration by Dettmer Otto

Get article background

OVER the next few months America's Nuclear Regulatory Commission (NRC) expects to receive 12 applications to build new nuclear-power reactors at seven different sites. It is preparing to see plans for another 15 at 11 more locations next year. These will be the first full applications to build new nuclear plants in America for 30 years. If they are all successful, the number of reactors in the country will increase by roughly a third. The output of nuclear electricity would grow even more sharply—the new reactors would be more powerful than older ones. The new enthusiasm for building reactors means America's long-awaited “nuclear renaissance” is about to become reality.

Whether it is a leap forwards or a step backwards remains to be seen. Since the 1970s, far from being “too cheap to meter”—as it proponents once blithely claimed—nuclear power has proved too expensive to matter. The problem is finance: nuclear plants cost a lot to build but are relatively cheap to run, unlike gas-fired ones, for which the reverse is true. So to be profitable they must be built quickly, to minimise the period when no revenue is coming in and interest payments are piling up on construction loans. Yet America's previous generation of nuclear plants was plagued by safety scares, design revisions and time-consuming regulatory procedures, which resulted in ruinously protracted construction.

America's most recent nuclear plant, at Watts Bar in Tennessee, started operations in 1996. But it took 23 years to complete at a cost of $6.9 billion; a second reactor at the site has been under construction, on and off, since 1973. Another plant, at Shoreham in New York, was completed and tested, but never allowed to start commercial operations because of local opposition. By the time it was decommissioned, in 1994—21 years after construction had begun—the costs had exploded from $70m to $6 billion. The local utility was able to pass most of this bill on to its customers. Not all energy firms have been so lucky: in 1988 Public Service Company of New Hampshire became the first American utility to go bust since the Depression, thanks largely to the fallout from a much-delayed nuclear project.

Even when they were switched on, nuclear-power stations did not fulfil their promise. They were supposed to run almost constantly, but proved much less reliable. In the early 1970s, for example, the average nuclear plant produced power for under half the time. Since most utilities had planned to run them flat out to generate enough revenue to repay their debts, this poor performance led to further financial troubles.

And, as anti-nuclear activists complain, all this happened despite the government's generous subsidies to help cover the costs of developing new designs and building prototypes.

As for safety...

What is worse, nuclear power has a spotty safety record. There have never been any catastrophic releases of radiation in Western countries. But one did occur in 1986 at Chernobyl, in what was then the Soviet Union and is now Ukraine. America came perilously close to such a disaster in 1979, when a reactor at Three Mile Island in Pennsylvania overheated and began to melt down. There have been lesser safety scares and scandals in many countries, including Britain, Germany and Sweden. In August an earthquake resulted in several small leaks of radioactive material from a nuclear reactor in Japan.

The next generation of nuclear plants is said to be very different. Firms which make them, such as America's General Electric and Westinghouse, and foreign manufacturers like France's AREVA, insist that such episodes will soon be a thing of the past. Their latest designs, they maintain, are simpler and safer than existing nuclear plants. That should make it easier to obtain operating permits, allow them to be built faster and be cheaper to run—and so much less risky financially. Meanwhile, contractors are said to be getting better at building them, the NRC better at regulating them and utilities better at running them. Although nuclear power's boosters welcome a smorgasbord of new subsidies that Congress has approved to nourish the industry, they say that in the long run even this will not be necessary because the industry will be able to move forward under its own nuclear-generated steam.

Consolidating reactors

America's utilities have certainly warmed to their existing nuclear-power plants now that they are running them more efficiently. In the 1970s, says Colette Lewiner, of Capgemini, a consultancy, even small municipally owned firms ordered nuclear reactors, imagining they would be no more complicated to operate than their existing power stations, except in so far as workers would need uranium to shovel into the furnace instead of coal. But they found that they had neither the expertise to maintain their new investments, nor the scale to absorb all the extra regulatory costs, nor the clout to secure fuel and parts at competitive prices. Many ended up putting their nuclear plants up for sale.

That allowed bigger firms to acquire reactors on the cheap, and thus to achieve economies of scale and to capitalise on their experience. These nuclear specialists have been able to speed up the refuelling process, keep shutdowns for maintenance to a minimum and so keep the reactors going more of the time. Last year the average nuclear reactor in America was in use 90% of the time. Better still, utilities have found ways to improve the non-nuclear parts of the power station, such as the steam turbines. These so-called “uprates” have increased America's nuclear capacity by almost 5,000MW since 1977, the equivalent of about five new nuclear reactors, according to the Nuclear Energy Institute, an industry group. At the same time, the NRC has agreed to extend the working life of about half of America's nuclear plants for an extra 20 years.

All this has turned nuclear-power plants into virtual mints—as long as the bill for construction has been paid down or written off. In most of America, the wholesale power price is closely linked to the price of natural gas, since gas-fired plants tend to provide the extra power required at times of peak demand. So the price of power has risen along with that of gas over the past few years, whereas the operating costs of nuclear plants have remained relatively stable. According to the Energy Information Administration, a government agency, the average wholesale power price in 2005 was 5 cents per kilowatt-hour (kWh); the Nuclear Energy Institute, an industry group, reckons that the average operating cost of America's nuclear plants was 1.7 cents per kWh that year. So their margins were almost 200%.

No wonder that utilities are rushing to the NRC with their plans for new reactors. But to get any of them off the ground they must not only persuade the NRC of the safety of their designs, but also convince potential creditors that there will be no repeat of the financial meltdowns of the 1970s and 1980s. They point to three reasons for optimism: changing conditions in the energy business, a streamlining of the NRC's process for obtaining permits and an overhaul of construction techniques.

Until recently coal-fired plants seemed to be safer investments. But nowadays most utilities expect—and in some cases are calling for—Congress to limit emissions of greenhouse gases in the near future to temper climate change. Coal-fired plants, which have a working life of 40 years or more, spew out globe-warming pollution, whereas nuclear ones produce almost no greenhouse gases at all. So coal is now

subject to a massive “regulatory risk” of its own. Utilities are piling into green-generation technologies, such as wind turbines and solar panels. But for a constant source of clean power, they have few choices other than nuclear.

Meanwhile, to avoid the fiascos of the past the NRC has simplified its procedures. It used to require utilities to obtain two different licences, the first to build a nuclear plant and after that a second licence to start it up. Both applications involved lengthy reviews, which culminated in interminable public hearings. New reactors, like the one at Shoreham, could be finished at great expense and yet never secure an operating licence. So the NRC is combining the two stages: utilities can now apply for a single “combined construction and operating licence”. Construction need not start—and for most bits of the plant is not allowed to—until the licence is issued.

To speed things up even more, the NRC is allowing firms selling nuclear reactors to get designs cleared in advance. That way, when a utility applies to build a reactor of an approved design, the NRC will only need to review the modifications that are unique to its site. Westinghouse has already got its AP-1000 model cleared; the NRC is in the process of certifying GE's latest design, called the ESBWR, and AREVA is about to submit an application for its new offering, the EPR.

By the same token, utilities can now ask the NRC to approve a location as suitable for a nuclear-power station before they go to the trouble and expense of applying for a combined licence. Four firms have asked for these “early site permits” and two have already received them. Another short cut involves submitting the environmental part of a combined licence before the part that deals with the design. UniStar, a joint venture between America's Constellation and Électricité de France (EDF), filed that sort of paperwork in July for a new reactor in Maryland.

The NRC has also made a point of asking utilities about their nuclear plans before any applications arrive. This is so it can be sure it will have enough staff to handle them—which is how it knows how many new plants are in the works. It is hiring about 200 new staff every year, and since most of the utilities contemplating nuclear plants are in the South, has set up a field office in Georgia to co-ordinate with them directly. It is even planning to suggest to Congress possible amendments to the relevant laws to reduce the hassle and uncertainty of licensing even more.

The process will still be time-consuming: the NRC reckons it will need two and a half years to review each application and a further year to conduct hearings on its conclusions. Certification of new reactor designs might take as long as four years: AREVA says its application for the EPR runs to 17,000 pages and fills a small bookcase. Nonetheless, the NRC aims to issue its first new licences at some point in 2011.

Obstreperous local authorities could still put a spanner in the works. It was opposition from county and state officials, for example, that finally did in the Shoreham plant. Although they have no explicit authority to block a new reactor, local officials can withhold permits to use the water from a river for cooling, for example, or refuse to co-operate on emergency planning. But utilities are hoping to avoid such pitfalls by locating their new reactors only in welcoming jurisdictions—preferably next door to existing ones. Locals in such places know that expanding existing nuclear facilities will bring more jobs and produce more tax revenue. Moreover, they have grown accustomed to having nuclear reactors nearby and do not find the idea particularly frightening. As Dale Klein, chairman of the NRC, puts it, the staff and management of nuclear plants, and local residents, all go to church together.

Fast builders

Utilities are also confident that they can build new reactors more quickly than before. Many have already placed orders for the parts that take a long time to build. They have also brought in partners that have completed nuclear projects on time and on budget in other countries. Westinghouse, for example, points to the exemplary record of its parent company, Toshiba, in Japan. Similarly, GE has teamed up with Hitachi, another respected Japanese nuclear contractor. AREVA, meanwhile, looks to the series of successful plants it has built in conjunction with EDF in France. All three vendors say they plan to save time and money by using as many identical parts as possible for the different nuclear plants they build in America—unlike the bespoke designs of the past. All this should reduce the time required for construction to four years, they say, which would allow the first new reactors to enter service in 2015 or 2016.

But bankers are still sceptical. They are worried that when the new designs and the NRC's new procedures are put to the test, hidden flaws will emerge. After all, the first of AREVA's EPR designs is under construction in Finland and is two years behind schedule and dramatically over budget. To avoid such nasty surprises, NRG Energy, a power-generation company that is applying to build two new reactors in

Texas, has opted for one of GE's older and already-proven designs, even though GE insists that its ESBWR will be cheaper to build and to run. Other utilities are planning to build nuclear plants in the regulated markets of the South, in the hope that the regulators will allow them to pass any cost over-runs on to their customers.

Even so, says David Crane, NRG's boss, banks are simply not prepared to lend money to build nuclear plants in America without some extra surety. The Energy Policy Act, which Congress approved in 2005, is supposed to provide that. It offers four different types of subsidies for new reactors. First, it grants up to $2 billion in insurance against regulatory delays and lawsuits to the first six reactors to receive licences and start construction. Second, it extends an older law limiting a utility's liability to $10 billion in the event of a nuclear accident. Third, it provides a tax credit of 1.8 cents per kWh for the first 6,000MW generated by new plants. Fourth, and most importantly, it offers guarantees for an indeterminate amount of loans to fund new nuclear reactors and other types of power plant using “innovative” technology.

The scope of these loan guarantees is the subject of great controversy. Some politicians fear that the costs of the programme might balloon; others complain that the Department of Energy, which will administer it, is too stingy. Meanwhile, some financial experts argue that the rules, as drafted, would not allow issuing banks to repackage and sell on the loans in question, making them less attractive. There is also some debate about what proportion of a nuclear plant's debt should be covered: the act says up to 80% of the costs of construction, but that might be sufficient to cover the full amount borrowed, leaving banks with no risk at all. Until all this is settled, utility bosses insist, new nuclear plants will not get built.

Clearing up afterwards

The fate of America's nuclear waste, which the government has vowed to sequester for a million years, is another unresolved issue. In theory, the Department of Energy is in charge of looking after it all. It requires utilities to set aside a tenth of a cent for each kilowatt-hour of nuclear power they generate to help defray the costs of transporting nuclear waste to a safe repository and storing it there permanently. The only hitch is that no such repository yet exists.

Illustration by Dettmer Otto

Most countries with nuclear power have determined that the safest way to store their waste is underground, deep in the bedrock in air- and watertight containers. But no one has actually built such a facility. America has got as far as selecting a site for one, at Yucca Mountain, a ridge in the middle of a former nuclear-testing ground in Nevada. The Department of Energy is planning to submit an application to the NRC next year to build a repository there. The NRC, in turn, thinks the application will take about three years to review. Officials say the facility will be open for business in 2017.

But Harry Reid, a senator from Nevada, has vowed to derail the scheme. As it is, Congress has been cutting funding for the Yucca Mountain project, which was first proposed in 1978 and has since been the subject of several lawsuits. Now that Mr Reid has become Senate majority leader the odds of the repository ever getting built have diminished.

Meanwhile, nuclear waste continues to pile up in ponds and containers at nuclear plants around the country. The NRC monitors these and claims that they are safe for the foreseeable future. But Mr Klein, its chairman, tactfully hints that it would be prudent for the government to find a more permanent solution, especially since it is encouraging a dramatic expansion of nuclear power.

Nonetheless, Mr Klein believes that the expansion of nuclear energy is now in motion and is unlikely to be slowed down by concerns about what to do with the waste. The only thing that could stop a nuclear renaissance now, he suggests, is a serious accident at an existing plant. Unfortunately, it would not be the first.

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The banking system

Down the drain

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Illustration by Satoshi Kambayashi

The money markets are still blocked. Do central banks have the right tools?

“NOT only is there no God,” said Woody Allen, “but try getting a plumber on weekends.” That just about sums up the problems of today's financial markets. The plumbing is badly blocked, and nobody seems able to fix it, not even the central banks, the market's immortals.

The problem is the apparent reluctance of banks to lend to each other, particularly over three months. That problem arises, in part, from uncertainty about who will pay the bill for America's subprime-mortgage collapse. But it also results from the need for banks to protect their own balance-sheets in the face of some unexpected claims on their capital.

The result is that banks are paying much more to borrow than normal, particularly compared with governments. According to Goldman Sachs, one measure of this gap between American Treasury bills and interbank rates, nicknamed the “Ted spread”, is at a 20-year high. And like other plumbing problems, this could have severe consequences, because when banks pay more to borrow they pass the cost on to consumers and companies.

On September 5th the Bank of England got its monkey wrench out and tackled one issue, the half-percentage-point gap between overnight lending rates and its official benchmark. The Bank promised to lend more money to the market, if necessary, to bring overnight rates down.

Critics argue that the Bank has been time-wasting. The European Central Bank and the Federal Reserve made similar moves last month, and the ECB did so again on September 6th. But the Bank of England's failure to act sooner seems to be part of a general reluctance to be seen to be saving speculators from their mistakes. The Bank made it clear that it was not aiming to bring down three-month lending rates, which are the markets' most acute pressure point. A bank may be good for its money in the morning, but who knows what will have happened by December?

Perhaps central banks cannot solve the problem on their own anyway. They have offered to provide finance to any bank that needs it via mechanisms such as the discount window operated by the Federal Reserve. But banks are understandably reluctant to show any hint of desperation. Borrowing from a central bank in the middle of a liquidity crisis is rather like a schoolboy agreeing to have a sign saying “Kick me” pinned to his shirt-tails.

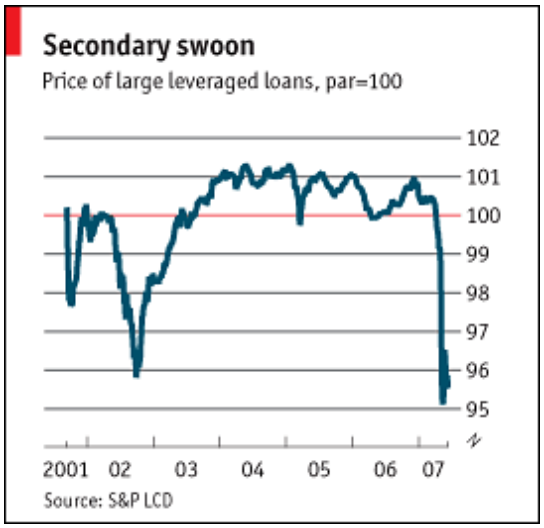
Even a cut in official rates, as is expected in America later this month, may not clear the blockage. The fundamental problem is that the banks made promises that they did not expect to have to keep. These

“contingent liabilities” require banks to take the strain when their clients face problems in finding funding elsewhere. Suddenly, a lot of these bills have come due at once.

According to Dealogic, more than $380 billion of loans and bonds linked to pending leveraged buy-outs need to be shifted now that Wall Street bankers have returned from their holidays. The speed of the market deterioration has been a big part of the problem. Banks made short-term or bridge loans to private-equity buyers with a typical 30-60 day holding period. When the markets were buzzing earlier this year, they assumed nothing could go wrong in such a short time. But they were wrong, and now they face the prospect of having to keep large chunks of the debt on their own books indefinitely, marked at a loss.

How big a loss is hard to gauge. One indication is the discounted price at which leveraged loans are trading in the secondary market (see chart). Another is the tussle over the financing for the takeover of First Data, a transaction-processing company. This has already been postponed once. Banks will try to syndicate it again soon. Investors seem unwilling to pay more than 94-95% of par value for the $14 billion of loans in the package. That would wipe out the banks' fees on the deal and leave them with further losses of 3-4%. One banker involved in the deal says its fate is still clouded in uncertainty: “We still don't know if an avalanche is going to fall on our heads.”

First Data will set the tone for other deals, such as the takeovers of TXU, a utility, and Alltel, a mobile-phone firm. The main obstacle is that the First Data deal “has all the bells and whistles of the bubble era”, says another banker: it is, for instance, “covenant-lite” and offers lenders little protection.



Banks would love to wriggle out of the most egregious deals, or at least get better terms. But that is proving hard. They painted themselves into a corner when the market was booming. Previously, many deals included a “material adverse change” clause that cancelled the financing if severe turbulence hit the markets. These would have been handy today, but the banks stopped insisting on them.

As if the buy-out issue was not bad enough, banks face a bigger danger elsewhere, linked to the subprime-mortgage crisis. This threat involves a series of specialist investment vehicles known as conduits and structured investment vehicles (SIVs). Conduits were mainly set up by banks as “off-balance-sheet” vehicles for themselves and their customers that allowed them to invest in slightly riskier assets. SIVs tend to be independent. Both borrowed partially (but not exclusively) in a form of short-term debt known as asset-backed commercial paper.

The investors who bought this paper are now deciding it is not worth the risk. That gives the conduits and SIVs a problem. Moody's, a rating agency, says many have found funding “either impossible or achievable only at exorbitant levels”. On September 5th the agency downgraded (or placed on review) some $14 billion-worth of bonds as a result.

Some SIVs had back-up banking facilities; some did not. But avoiding this direct liability may be of little help for the banking industry as a whole, since when SIVs cannot get funding, they are forced to sell assets. This pushes down prices and increases the chances of the banks suffering losses elsewhere.

Banks are now finding that these risks are coming racing back onto their balance-sheets. It is an ugly prospect since Tim Bond of Barclays Capital estimates that $1.4 trillion-worth of conduits are out there. Either the banks will have to lend money directly to them, or they will end up owning a ragbag of securities—including some dreaded mortgage-linked bonds.

What seemed a clever wheeze to avoid the scrutiny of the regulators and auditors now looks foolish, since no bank knows the exposure of any other. Worse, none knows the extent to which it will end up on the hook itself. As a result, banks are hoarding their capital rather than lending it in the money markets.

If banks have to borrow at penal rates for some time, the poison will spread. Investment banks, for instance, do not rely on consumer deposits for funding, but on borrowing from commercial banks and others. If the cost of their finance goes up, they will have either to cut the supply, or raise the cost, of finance to important investors such as hedge funds. Those hedge funds will then have to sell assets, which might give the whole system another downward lurch. Where's that plumber when you need him?

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Bank regulation

Uphill work

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Market turmoil raises concerns about the Basel 2 banking accord

SISYPHUS was lucky. He could have wound up on the Basel committee. Since 1999 the committee has been sweating over the Basel 2 accord, a regulatory framework that guides how much capital banks should set aside to cover the level of risk they face. An end is finally in sight. A few European Union banks have already adopted the new rules; others will follow next year. A select number of American banks will implement Basel 2 in 2009. But this summer's credit crunch has put the incoming framework under scrutiny before it has even had a chance to prove itself. “This is the first stressed situation in a long time and it's directly pertinent to many of the changes being brought in by Basel 2,” says Vishal Vedi, a partner at Deloitte, an accounting firm.

One effect of the accord, for example, is to give credit-rating agencies an explicit role, particularly for less sophisticated banks, in determining how much capital is enough to cover certain risks. That looks dangerous, given fears that the agencies have over-estimated the creditworthiness of some asset-backed securities (see article). It may also encourage complacency on the part of the banks.

Defenders of Basel 2 point out that the agencies are under the cosh now, but that their record in assessing the risk of default is pretty good. What's more, ratings may set a floor under some capital requirements but banks are supposed to top up their reserves if they have other reasons to worry based on their own analysis.

That is not the only bit of the accord under scrutiny. Basel 2 positively encourages banks to use instruments such as credit derivatives. Yet the complexity and number of such instruments lie behind banks' difficulties in knowing who will bear the ultimate exposure to defaults on American subprime mortgages.

The accord also enshrines an approach called value at risk (VAR), a risk-management technique that, like a gambler's optimism, has a worrying tendency to swell the longer things are going well. In response, the accord asks banks to say if they are vulnerable to off-balance-sheet vehicles and to stress-test their business.

A few weeks of summer turmoil should not undo years of painstaking regulatory work. Basel 2 is a big improvement on the outgoing Basel 1 framework, which simply imposes a flat 8% charge on loans and assets irrespective of how risky they may be.

The new accord is more sensitive and more adaptable than its predecessor. By dangling the carrot of lower capital charges in front of the more sophisticated institutions, it encourages banks to think harder about risk. Transitional arrangements are in place to ensure that banks cannot slash their capital reserves precipitously. “Basel 2 is not perfect, but it is a lot better than what went before,” says John Tattersall, a partner at PricewaterhouseCoopers, an accounting firm.

Even so, the credit crunch points the way for the next regulatory push. In particular, the accord does not have much to say about liquidity risk, largely because hoarding capital is not the best way to deal with it (access to funding facilities is better). Like other regulators, the Basel committee was already looking at liquidity risk before credit markets became strangled: a working group on the topic is to report before the end of the year. Sisyphus would have sympathised.

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Buttonwood

Credit and blame

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From The Economist print edition

The rating agencies operate on shaky foundations

AS OSCAR WILDE might have said, it is the unspeakable in pursuit of the unrateable. America's Congress is holding hearings on the subprime-mortgage shambles and the losses that have resulted. The firms that must be feeling most nervous about the outcome are Standard & Poor's (S&P), Moody's and Fitch.

Those rating agencies have earned huge sums in the past ten years offering opinions on the creditworthiness of an alphabet soup of mortgage-related securities created by over-eager banks. As the market blossomed, so did the agencies' profits. Moody's net income rose from $289m in 2002 to $754m last year. But did the fat fees lead to a drop in standards?

The agencies feel aggrieved at the criticism. S&P says it has downgraded just 1% of subprime residential mortgage-backed securities, and that none of those downgrades affected the triple-A bonds. So far, defaults have hit only three of the mortgage tranches it has rated. Of more complex products, collateralised-debt obligations (CDOs) downgrades have affected just 1% of securities by value.

Critics might retort that the agencies are behind the times; market prices for subprime-related bonds suggest many are in deep trouble. But the agencies argue that their ratings are designed to measure the probability of default, not to recommend the purchase of individual securities or to predict market prices. And they say their long-term record is good; the average five-year default rate for investment grade (those rated triple-B and above) structured securities is less than 1%.

On negative watch

However, if the agencies wanted to plead innocence, this was not the ideal time for S&P to part company with its president, Kathleen Corbet, so that she could “spend more time with her family”. Although the agency said the move was unrelated to the credit crisis, it was an odd moment for Ms Corbet to fall on her kitchen knife.

The agencies are neither the only, nor indeed the main, culprits for the subprime crisis. The American mortgage industry was rotten from top to bottom, from buyers lying about their incomes to qualify for loans, through brokers accepting buyers with poor credit histories, to investors who bought bonds in the secondary market without conducting enough research.

Nevertheless, the agencies' business is built upon a rather shaky tripod. First, rules devised by regulators, such as America's Securities Exchange Commission (SEC) and bank watchdogs, have made ratings a formal part of the financial system. The agencies have thus been handed a lucrative oligopoly. Second, the rating agencies have claimed that they are acting as independent assessors of credit risk, and thus are immune to legal challenge on the basis of their “free speech” rights. The American courts have largely upheld this view. Third, as the European Union's Charlie McCreevy points out, they have a conflict of interest, since they are paid by the issuers whose securities they rate.

It is very hard to see how this combination can be justified. Imagine if patients were forced to use doctors whose incomes depended on the pharmaceutical companies, but who were immune from lawsuits if they prescribed a toxic drug. If the agencies' views are given a regulatory imprimatur, they should be subject to legal challenge. Alternatively, if they are simply independent expressions of opinion, then either investors, not issuers, should pay them, or they should be divorced from the regulatory system.

Why does the system exist? It arose in the 1970s when the SEC looked for a way to ensure that the brokers it regulated had enough capital. It was much easier for the commission to accept the opinions of a few agencies than to research every single bond itself, and it also saved money (and regulatory risk) for

the brokers. The SEC acted as a kind of rabbi, granting kosher status to a few agencies known as Nationally Recognised Statistical Rating Organisations, or NRSROs.

But any set of rules creates incentives for participants to game the system. And that seems to have happened with ratings. After all, CDOs repackage existing securities and charge hefty fees for doing so. There must be a substantial anomaly in the system to make such activities worthwhile; the most likely source is the way ratings are treated.

There are a number of possible remedies. One would be to create more agencies, a view that partly inspired the Credit Rating Agency Reform Act passed by Congress last year. But this might not help. Perhaps the existence of more agencies would encourage issuers to shop around for the firm with the weakest standards.

Joshua Rosner of Graham Fisher, an investment firm, thinks that the agencies should both be more transparent and improve their monitoring. Following bonds once they trade in the secondary market is much less lucrative for the agencies, he argues, and they devote far fewer resources to it. Although the agencies' models make it clear what rating they will give a bond on issue, it is less clear what will cause them to downgrade it later on.

Another response would be to make the agencies legally liable for their views. The courts may do this of their own volition. But the potential damage claim for making a duff rating would be so large that agencies might either be driven out of business or made excessively cautious by the threat of legal action.

The agencies could be asked to earn their fees from someone other than the issuers. But who? It is hard to believe that investors would pay, given the regulatory requirements. By hook or by crook, ratings would become public knowledge. The problem of free-riders means that there would not be enough research.

Perhaps the best approach would be to make the regulations less dependent on ratings. As the academic Frank Partnoy has suggested*, market values could be used instead. However, prices can be very volatile, as they have been in recent weeks; that might require banks to hold more reserves as a cushion against price moves, an inefficient use of their capital.

Even so, it seems odd to say that ratings are more accurate than the market. Regulators presumably require the use of ratings so that banks and brokers have enough reserves when the time comes. But if a security is trading at 80 cents on the dollar, it is no use saying that S&P rates it triple-A; the extra 20 cents will not magically appear because an agency says so.

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* "How and Why Credit Rating Agencies Are Not Like Other Gatekeepers", San Diego Legal Studies Paper No. 07-46.

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German banks

Unity in adversity

Sep 6th 2007 | FRANKFURT
From The Economist print edition

Only a crisis turns bad banks into bedfellows

Get article background

WHEN the smoke clears Deutsche Bank, Germany's biggest, may prove to be the agent of change in a long overdue upheaval of the German banking system. This week the bank was castigated by Heinrich Haasis, head of an association of savings banks. That is because it sold sophisticated financial structures, including investments in American subprime mortgages, to IKB, a small German lender, and was the first to pull the plug, six weeks ago, when IKB got into trouble. Josef Ackermann, Deutsche Bank's boss, has little time for such criticism. He blamed some German banks for taking on risks beyond their capacity and competence.

Whatever their rights and wrongs, IKB's troubles have triggered a crisis of confidence in Germany's publicly owned banks that could eventually turn out to have beneficial consequences. Saxony-based SachsenLB, one of the smaller wholesale banks, or Landesbanks, was caught in the same subprime mess as IKB, rescued by its peers, and sold at the end of August. Other Landesbanks appear to have been less exposed to America's subprime market, but it is open season on them nonetheless. That is because the mess has revealed a far deeper problem: their business model is kaput.

Landesbanks were set up to act as wholesale financiers alongside state-owned regional savings banks. With a state guarantee they were able to fund themselves cheaply, making their lending profitable. When their state guarantee was abolished in 2005, under pressure from Brussels, they found it harder to obtain cheap new funding and had to scour for higher-yielding assets. Investment banks touting mortgage-backed securities from America found a particularly receptive audience at SachsenLB. Other banks were also tempted into rough waters. WestLB recently confirmed it had lost €604m ($824m) in a share-trading scandal.

Now WestLB is for sale, and where management failure has led it, other Landesbanks should be urged to follow. The business case for so many non-entities cluttering up the German banking system is becoming ever harder to sustain. Germany has far too many banks, around 2,200 in all, which has a depressing effect on the industry's profitability (see chart).

There are two high hurdles to overcome, however, before the numbers can fall. One is political protection. Landesbanks are seen as vehicles of prestige and power by the politicians who sit on their boards. (Though the finance minister of Saxony, who headed the supervisory board of SachsenLB, saw the flipside last week when he was forced out of office.) Savings banks, too, are often seen as local development banks by their municipal bosses, with little concern for profit.

The other hurdle is the shortage of possible buyers. The savings banks, which are protected from private sale by law, do not want to merge with Landesbanks nor will they let them go to anyone else. Private banks such as Commerzbank and even private-equity firms may be interested in WestLB. But when Commerzbank sought to buy Landesbank Berlin, the capital's wholesale bank, earlier this year, it was outbid by the savings banks association.

Rather than merging Landesbanks with savings or private banks, the public banking sector is seduced by the intoxicating—if daft—idea of creating a champion Landesbank, perhaps bigger than Deutsche Bank. That, some hope, would have the critical mass to succeed—even globally.

But in fraught markets where it is increasingly difficult to obtain wholesale funding, banks benefit from having retail customers to provide cheap money in the form of deposits. Only two Landesbanks have a retail base: LBBW in Baden-Württemburg and Landesbank Berlin. But even LBBW, which stepped in to buy SachsenLB, and is the biggest Landesbank, is a pygmy by European standards. Deutsche Bank alone among the German banks makes it into Europe's top 20.

Could Deutsche, too, be on the lookout for opportunities in Germany? Mr Ackermann made an astonishing proposal this week, not to buy savings banks, but to co-operate with them as their partner for global investment banking and wholesale products. It would indeed be sensible for Deutsche Bank to focus on building links at home. It has shown it can make a difference by hastening the demise of poorly run banks. Progress is a permanent process of creative destruction, wrote Mr Ackermann recently, borrowing from the economist Joseph Schumpeter.

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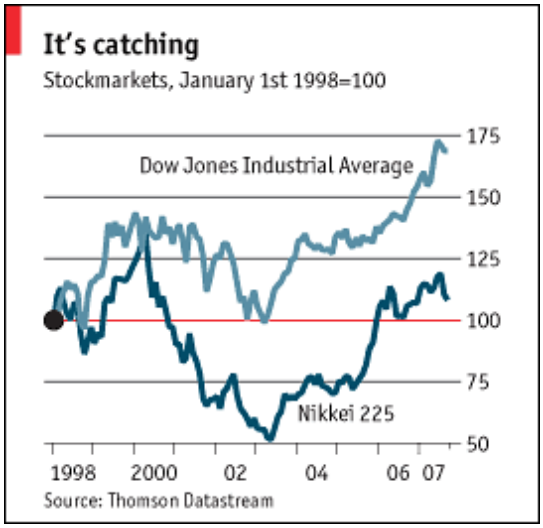
Japan's economy and markets

So unfair

Sep 6th 2007 | TOKYO
From The Economist print edition

Japan cannot easily hide from the effects of the American credit bust

Get article background



TURMOIL in America's subprime and asset-backed markets has hit Japan's publicly traded financial markets more than perhaps any other country's. At the height of the panic in mid-August the Nikkei 225 index fell by 9% in a single week, dipping 16% below its July peak. Despite a recovery of sorts, the Nikkei is still 7% below its starting-point for the year. American shares, where the trouble all began, remain up on the year. Investors are squealing at the injustice of it.

To make matters worse, Japan's currency has surged as hedge funds have unwound their positions in the carry trade—where people borrow cheap yen to sell in order to invest in higher-yielding assets overseas. That has left many ordinary Japanese savers facing not just paper losses as the yen climbed but also steep margin calls from foreign-exchange brokers. The yen has slipped back a bit but not enough to make good on losses.

Why should Japan, so far from the storm's centre, have been hit so hard? Financial innovation of the sort that encouraged risk to multiply elsewhere is scarcely known in Japan. An unusually high proportion of household assets remains under the mattress or in bank deposits. Japanese financial institutions have only the smallest exposure to subprime debt. In general, the appetite for leverage is tiny in comparison with America's or Europe's. Richard Jerram of Macquarie Research points out that the value of all corporate bonds outstanding in Japan is equivalent to just under 10% of GDP, roughly the same ratio as subprime and other high-risk debt alone in America.

The simplest explanation is that Western banks, hedge funds and others hit by higher volatility, liquidity concerns or redemption calls sold whatever they could. The foreign-exchange market is hugely liquid, so carry-trade positions were easily unwound. The market for Japanese shares is also big and liquid—and disproportionately owned by foreign investors. Foreigners own 30% of Japan's listed shares, and typically account for three-fifths of all trading (Japanese institutions tend to sit on their holdings). Huge foreign sell orders—the biggest since the world stockmarket crash of October 1987—sent Japan's blue-chip shares skidding.

However susceptible Japan's financial markets have been to the bursting of America's credit bubble, plenty of analysts argue that the country is insulated from the economic consequences. Japan's five-year-old recovery is led by domestic demand, they say, and by business investment in particular. As for trade flows, America matters less than it did, swallowing just 20% of Japan's exports compared with nearly double that amount two decades ago. Optimists also point out that any American slowdown would presumably be felt most in the construction industry, a sector to which Japanese exports are not heavily exposed.

If these analysts are right, you might expect investors to be snapping up the stockmarket bargains that distressed selling has created. But there are gloomier voices too. Richard Katz of the *Oriental Economist*, a newsletter, emphasises the continued importance of exports to Japan's economy. The growth in Japan's net exports, as measured by the growth in its trade surplus, has accounted for more than a third of GDP growth since the start of the recovery in 2002. The rise in business investment that has accounted for two-fifths of the recovery is also heavily focused on the export sector and on companies with a high share of earnings from overseas. And even if America's direct impact on Japanese exports is more muffled than before, its indirect one is substantial thanks to “triangular” trade flows. Japan may be more dependent

than ever on exports to Asia, particularly China, but Asia in turn counts on exports to the United States.

How badly a slowdown in America might affect Japan depends on its severity. Goldman Sachs estimates that every percentage-point fall in American consumption would reduce Japanese GDP, currently growing at just over 2% annually, by 0.43 of a percentage point. Goldman assumes that American consumption will grow by 2.1% next year. If it fell to zero or worse, Japan would have a problem.

Meanwhile, credit-market turmoil creates a quandary for the Bank of Japan (BoJ). While other central banks consider cutting rates, the BoJ's governor, Toshihiko Fukui, is itching to raise them. By the time he steps down next March, he wants the bank to “normalise” monetary policy (until last year the short-term rate was set at zero, and is now just 0.5%). Until the turmoil, a quarter-point rise in late August had looked assured. Now prospects even for a September hike look dim, since poor second-quarter GDP figures and weak capital expenditure suggest that the economy, not for the first time in this recovery, has hit a soft patch. Core consumer prices have been falling slightly for most of this year.

The case for normalisation is that low rates encourage bubbles to develop and reward inefficient firms. But that argument will be hard to make for as long as stockmarkets are weak, the yen continues to rise and American and European economies remain wracked by credit troubles. No matter whose fault it is.

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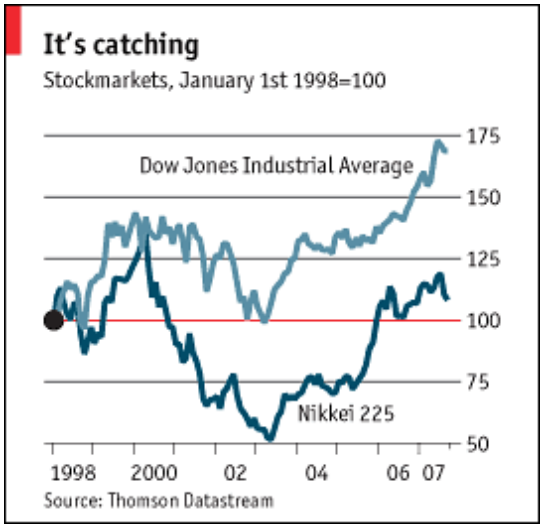

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Economics focus

Tangled reins

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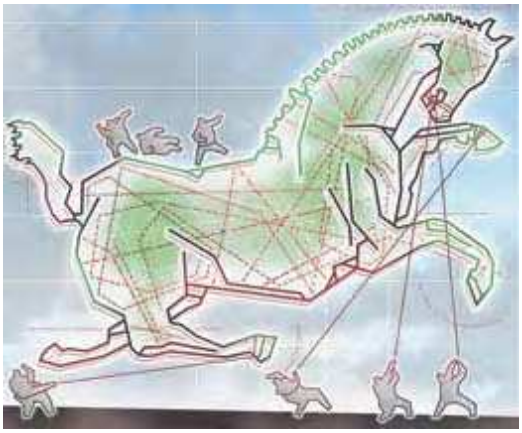
America's central bank attempts to tame a beast it once let loose

Illustration by Jac



COWBOY culture might not seem an obvious source of inspiration for central bankers. But during their recent gathering in Jackson Hole, Wyoming, the world's monetary-policy elite watched a new-age cowboy saddle an unbroken horse, calming the anxious animal with soft words and a gentle touch. The techniques of horse whispering, he claimed, could be used to build trust and confidence in all walks of life. “What about the commercial-paper market?” one onlooker quipped.

Confidence is exactly what financial markets need right now, and Federal Reserve officials are grasping for their own version of the horse whisperers' magic. In an eagerly awaited speech at Jackson Hole, Ben Bernanke, the Fed chairman, did his statesmanlike best to exude confidence, reiterating that although the central bank should not protect lenders and investors “from the consequences of their financial decisions”, it would act “as needed” to limit damage to the broader economy. But the exact implication of his remarks for interest rates was left unspecified.

A more detailed insight came from Frederic Mishkin*, a Fed governor who, along with Mr Bernanke himself, is one of the most accomplished monetary experts on the central bank's interest-rate setting committee. Mr Mishkin exuded confidence too, but not of the horse-whispering sort. Instead, he ran through simulations on the mortgage implosion and insisted that the Fed could contain the fallout. His numbers suggested that, even if house prices were to fall by 20% in real terms over the next two years, and even if the links between house prices and spending proved to be stronger than the central bank ordinarily assumes, the consequences would be manageable. The economy's growth would never be dragged down by more than half a percentage point, while the unemployment rate would rise by only 0.2 of a percentage point.

Reassuring stuff—except Mr Mishkin's rosy figures assume that central bankers can quickly and pre-emptively loosen monetary policy. The big relief, in Mr Mishkin's view, is that falling house prices translate only slowly into lower spending, so central bankers can soften even sharp house-price declines provided that they cut interest rates early. His paper suggests, for instance, that if house prices were to fall by a fifth, short-term interest rates might need to be cut by some 1.75 percentage points over the next year or so.

In other words, Mr Mishkin suggests the Fed should cut interest rates before a deflating housing bubble affects the real economy, even though it resisted acting before an inflating bubble created dangerous economic distortions. That sounds suspiciously like the Fed's position before and after the stockmarket bust: sit back as the bubble grows, but react aggressively in the aftermath—and never mind criticism that the low interest rates of a few years ago helped to stoke the housing bubble.

Mr Mishkin did not deny that those cuts inflated house prices. Quite the opposite. His study described the many channels through which housing transmits changes in monetary policy into the broader economy. A lower cost of capital, for instance, fuels the pace of construction. Lower interest rates boost house prices which in turn encourage people to spend more by making them feel wealthier and giving them more scope to borrow. The Fed's basic model suggests that about 14% of the impact of any interest-rate change on the economy is transmitted via housing markets. Because credit markets have grown more sophisticated, the impact could be as high as 25%.

Mr Mishkin also acknowledged that housing booms and busts could contribute to financial instability, which could “magnify problems for the overall economy.” As documented in his paper, the subprime mess was

preceded by a lending bonanza and a weakening of credit standards. Yet, for all that, Mr Mishkin stuck to the Fed's line that it should not have tried to restrain house prices with higher interest rates. He repeated the standard arguments for why central bankers should not target house prices: that bubbles can be identified only after the fact, and that pricking them with higher interest rates might do more harm than good.

Shooting at the sheriff

This is by now an old debate. A minority of central bankers (mainly in Europe) and many observers (including *The Economist*) have long argued that the Fed should try harder to prevent bubbles. The new twist at this year's gathering was that the critics' ranks seemed to be deepening. John Taylor, a Stanford University professor and author of the “Taylor Rule” for setting interest rates, argued that the Fed had erred by keeping rates too low for too long. Had the central bank followed his rule, he argued, it would have raised the Federal funds rate from 1.75% in 2001 to 5.25% by mid-2005, rather than pushing it down to 1% and then raising it only slowly. Professor Taylor's calculations showed that a more orthodox path for interest rates would have dramatically reduced the pace of home building. Earlier tightening, he argued, would have “avoided much of the housing boom”. Central bankers from Israel to Brazil spoke up in favour of discouraging bubbles and questioned the Fed's approach.

And well they might. The asymmetry in the Fed's thinking is obvious. If Mr Mishkin believes the Fed should anticipate the economic consequences of a deflating bubble, why should it not anticipate the consequences of an inflating one? If it is possible to spot excessive lending as the market climbs, how can it be so impossible to identify bubbles? Until this asymmetry is corrected, frequent bubbles seem a sure thing. And the Fed's efforts to exude a cowboy confidence will be undermined by the suspicion that it is dealing with the consequences of its own errors.

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Asteroid impacts

Baptistina's terrible daughters

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Astronomers have traced the asteroid that killed the dinosaurs

Science Photo Library

IT WAS once suggested, to illustrate the chaotic and unpredictable way in which natural systems behave, that the beat of a butterfly's wing in China could eventually trigger a hurricane in the Atlantic. A bit of an exaggeration, perhaps, but the point was that even in the theoretically deterministic world of Newtonian mechanics, only a small amount of complexity is needed to make practical prediction well nigh impossible.

Thus it is perhaps not as far-fetched as it sounds to suggest that the collision 160m years ago of two space rocks, albeit quite large ones, resulted in the stormy death almost 100m years later of the dinosaurs and many other species on Earth. For although the orbits of the planets look to astronomers like a model of regular, Newtonian clockwork, on a scale of millions of years, the solar system is every bit as chaotic as the Earth's weather.

That such a collision was, indeed, responsible for the demise of the dinosaurs is a suggestion made in the September 6th issue of *Nature* by William Bottke and his colleagues at the Southwest Research Institute in Boulder, Colorado. Dr Bottke has been tracking the orbits of asteroids. These rocky minor planets, most of which are located between the orbits of Mars and Jupiter, often come in families. Members share both chemical composition (which can be deduced from the spectrum of the light they reflect) and orbital characteristics. The assumption is that such families are the daughters of single, larger bodies that have been hit by other asteroids and smashed into pieces. Dr Bottke thinks he has traced one such family back to its original collision.

A smashing time

The largest member of the family in question is called Baptistina, and is some 40km (25 miles) across. In addition to her, the team identified many more than 2,000 smaller objects as belonging to the same family. They were able to do this by looking at those asteroids' orbits in detail.

One of the chaotic things that happen to the paths taken by asteroids is caused by sunlight, and is known as the Yarkovsky effect. Just as most orbiting planets spin on their axes, so asteroids also rotate. When part of an asteroid's surface passes from night to day, it starts to warm up. Because of thermal inertia, the time at which it reaches its maximum temperature comes somewhat after local “noon”, a phenomenon that any sunbather will recognise. Since the heat it radiates back into space depends on its temperature, the afternoon side of an asteroid radiates more heat than the morning side. The reaction to this radiation is greater on the afternoon side than on the morning side and there is thus a small force pushing on the

afternoon side that gradually distorts the asteroid's orbit. The smaller the asteroid in question, the faster that distortion happens.

The result is that the daughters of Baptistina have become scattered farther and farther away from their mother. From the pattern of this scattering, and from the sizes of the asteroids (which tells you how fast they will scatter), it is possible to calculate the date of the original collision. That turns out to be 160m years ago, give or take about 20m years.

That the dinosaurs were killed off 65m years ago by an asteroid impact is now widely accepted. Dr Bottke's contention is that the deed was done by one of Baptistina's daughters. His evidence is twofold. First, the surviving debris from the devastating impact has the same composition as Baptistina and her offspring. That is a necessary but not a sufficient condition, as the type of rock involved, called carbonaceous chondrite, is found in other asteroids, too. The second line of evidence is the “case of the missing daughters”.

The cluster of Baptistina's young has a gap in it. This corresponds to a place where the gravitational pulls of Mars and Jupiter have conspired to change the orbits of any asteroids much faster than the Yarkovsky effect could manage alone. Such asteroids would rapidly have adopted orbits that cut across those of the inner planets, including Earth. Many of the larger ones would have started arriving about 100m years ago. Sooner or later, collisions would have been inevitable.

Those collisions are why the asteroids that ought to be in the space are missing. They are probably also the explanation for the fact that, over the past 100m years or so, the number of asteroids that have hit the Earth is about twice that which would have been expected. Taking into account the circumstances that pertained 65m years ago, Dr Bottke reckons it more than 90% probable that the dinosaur killer was one of Baptistina's daughters.

The hole made by that collision, in what is now the Yucatan Peninsula in southern Mexico, has long since been buried in thick layers of sediment under the sea. But anyone with a pair of field glasses can see for himself what Baptistina's daughters are capable of.

The lunar crater named after Tycho Brahe, a 16th century Danish astronomer, near the moon's south pole, is 85km across. It is surrounded by rays of ejecta that stretch across much of the southern lunar hemisphere, indicating the violence of the impact that formed it. It is thought to be just over 100m years old (*Apollo 17* brought back material from the site, which allowed it to be dated), and it is reckoned by Dr Bottke to be the result of the moon encountering one of the first of Baptistina's progeny to arrive in the inner solar system. It is a beautiful sight. But you would not have wanted to witness, at close quarters, its creation.

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Near-Earth objects

Not in my back yard

Sep 6th 2007
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Private efforts to avert disaster in space

THE dinosaurs fell victim to an asteroid smashing into the Earth, but people have no plans to allow such a calamity to befall them. For the past decade or so, astronomers have been watching the skies to identify dangerous flying objects. One lump of rock, called Apophis, the Greek name for an Egyptian god of destruction, alarmed astronomers when it was first spotted in 2004. They now think it is extremely unlikely to hit the planet. Even so, a private company has just unveiled plans to visit it, in case Apophis does decide to pop in on Earth sometime soon.

The reason for the trip is that the orbits of asteroids are difficult to predict. Apophis is expected to sweep close enough to the Earth in 2029 to pass below the altitude of communications satellites. Depending on its exact path, it could pass through what is known as a keyhole—a narrow range of orbits—that would deflect it and cause it to crash into the planet when it comes round again exactly seven years later.

Hence the bid to launch a probe by Astrium, a spacecraft subsidiary of EADS, a European aerospace and defence giant. It would study the way in which Apophis is drifting because of the effects of sunlight (see article) and that would enable astronomers to plot its course more accurately. The probe would also map the details of Apophis's surface and determine its thermal properties, which would help identify the composition of the asteroid. Such information could prove invaluable if it became necessary to nudge the projectile from its path.

The idea is to launch the mission, called Apex, in 2013 and for it to rendezvous with the asteroid in January 2014. The probe would spend three years stalking Apophis so that, if it did appear to be heading towards the keyhole, action could be taken to divert it well before 2029.

Improbable though astronomers think this particular impact may be, it would be good to know more about nearby asteroids so that when one does threaten to strike, its route can be changed. Apophis is some 350 metres across, considerably larger than the object that is thought to have flattened 2,000 square kilometres of Siberian forest as it vaporised in the atmosphere above Tunguska in 1908.

Smashing such an object to smithereens, a technique championed by Hollywood films, would be silly because the Earth would be pelted with lots of smaller bits of debris that could prove just as destructive, particularly near a city. Better to knock it off course or tow it away using the gravitational attraction of a spacecraft sent to divert it. The success of this approach would depend not only on the path the asteroid is expected to take, but also on how the material that forms it is bound together.

Astrium's plans have been submitted to the Planetary Society, a group of space enthusiasts that has stumped up $50,000 in prize money to inspire interest in a mission to Apophis. Given that the actual cost for such a mission would be more like $50m, both the American space agency, NASA, and its European counterpart are taking a close interest. It is they, after all, who would be footing most of the bill.

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Psychology and the sexes

Nurture strikes back

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Some sex differences that look biological are really cultural

ONCE upon a time, the only ideologically acceptable explanations of mental differences between men and women were cultural. Any biologist who dared to suggest in public that perhaps evolution might work differently on the sexes, and that this might perhaps result in some underlying neurological inequalities, was likely to get tarred and feathered.

Today, by contrast, biology tends to be an explanation of first resort in matters sexual. So it is salutary to come across an experiment which shows that a newly discovered difference which fits easily, at first sight, into the biological-determinism camp, actually does not belong there at all.

Writing in *Psychological Science*, a team led by Ian Spence of the University of Toronto describes a test performed on people's ability to spot unusual objects that appear in their field of vision. Success at spatial tasks like this often differs between the sexes (men are better at remembering and locating general landmarks; women are better at remembering and locating food), so the researchers were not surprised to discover a discrepancy between the two. The test asked people to identify an “odd man out” object in a briefly displayed field of two dozen otherwise identical objects. Men had a 68% success rate. Women had a 55% success rate.

Had they left it at that, Dr Spence and his colleagues might have concluded that they had uncovered yet another evolved difference between the sexes, come up with a “Just So” story to explain it in terms of division of labour on the African savannah, and moved on. However, they did not leave it at that. Instead, they asked some of their volunteers to spend ten hours playing an action-packed, shoot-'em-up video game, called “Medal of Honour: Pacific Assault”. As a control, other volunteers were asked to play a decidedly non-action-packed puzzle game, called “Ballance”, for a similar time. Both sets were then asked to do the odd-man-out test again.

Among the Ballancers, there was no change in the ability to pick out the unusual. Among those who had played “Medal of Honour”, both sexes improved their performances.

That is not surprising, given the different natures of the games. However, the improvement in the women was greater than the improvement in the men—so much so that there was no longer a significant difference between the two. Moreover, that absence of difference was long-lived. When the volunteers were tested again after five months, both the improvement and the lack of difference between the sexes remained. Though it is too early to be sure, it looks likely that the change in spatial acuity—and the abolition of any sex difference in that acuity—induced by playing “Medal of Honour” is permanent.

That has several implications. One is that playing violent computer games can have beneficial effects. Another is that the games might provide a way of rapidly improving spatial ability in people such as drivers and soldiers. And a third is that although genes are important, upbringing matters, too.

In this instance, exactly which bit of upbringing remains unclear. Perhaps it has to do with the different games that boys and girls play. But without further research, that suggestion is as much of a “Just So” story as those tales from the savannah.

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Dying bees

A sticky ending

Sep 6th 2007
From The Economist print edition

A virus may help explain colony collapse disorder

WHEN honey bees began to desert their hives recently, never to return, it threw apiarists into a panic. What appeared to be perfectly healthy adult bees would flee their queen, the young and their foodstores. Instead of ransacking the empty hive, other bees would avoid it like the plague. Yet there was nothing obviously wrong. Researchers have now identified the first tangible clue in the mystery—a relatively new virus.

Colony collapse disorder became widespread in America in the winter of 2006-07, when about a quarter of the nation's beekeepers were affected, each losing between 30% and 90% of their winged workers. Bees are valued not so much for their honey, which is worth some $200m a year in America, but for their work in pollinating crops. This brings the economy some $15 billion a year, as apiarists move their hives to land producing fruit, vegetables and nuts. The $2 billion almond business is particularly valuable.

Finding exactly why colonies collapse has been taxing the minds of both federal and university scientists. There have been few bodies on which to conduct autopsies. Those adult bees that have been found dead near an abandoned hive have been riddled with almost every bee disease known to man. Now a report by Diana Cox-Foster of Pennsylvania State University and her colleagues, published in the September 6th issue of *Science*, points the finger at the Israeli acute paralysis virus. The lurgy in question was, the researchers suggest, imported from Australia.

Because many factors could be acting together to cause bee colonies to collapse, Dr Cox-Foster and her colleagues decided to examine everything they could find within the empty hives. They collected samples from infected hives and compared them not only with samples from apparently healthy hives but also with an analysis of royal jelly—a bee secretion fed to the larvae—from China, which has not been affected by the mystery disorder.

From their samples, the researchers extracted RNA—a chemical that carries and helps to decode genetic information. Their analysis revealed the presence of various bacteria, fungi and viruses that were lurking in the hives and the royal jelly. They then looked to see whether there was anything in the abandoned hives that was not found elsewhere.

What they found was a virus first identified in 2004 in the Middle East. Bees infected with Israeli acute paralysis virus shiver, their bodies become frozen and they die. But the virus itself cannot be the sole cause of colony collapse disorder. For a start, all the hives infected with it were also infested with a second nasty, the Kashmiri bee virus. Yet this virus was also present in many of the apparently healthy hives. Intriguingly, there was also a virus that the researchers were unable to classify. They suspect it may be a new lineage of the Kashmiri bee virus, but it could be something completely novel. This second virus was also found only in the abandoned hives.

The researchers reckon that the reason why so many honey bees are dying is down to a combination of factors that are found only, so far, in America. The Israeli acute paralysis virus (and, perhaps, the mystery virus) may have had such a devastating effect there because of the presence of a parasite called the varroa mite. This parasite weakens the immune systems of bees, making the consequences of an infection more likely to be fatal. Tellingly, bees in Australia have not been infected by the parasite.

Moreover, it was in 2004 that America began importing bees from Australia—just when American beekeepers are thought to have seen the first suspected cases of colony collapse disorder.

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Human society

A land where God is absent

Sep 6th 2007
From The Economist print edition

The Western world may believe that it has liberated itself from clerical power, but divinity just keeps on breaking in

A Secular Age
By Charles Taylor

Belknap Press; 874 pages; $39.95 and £25.95

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Bridgeman Art Library

IN MEDIEVAL Christendom it was almost impossible not to believe in a transcendent power that determined human destiny. In the modern West there are contexts where the absence of any such power is so deeply assumed that religious belief becomes almost impossible to articulate. When people from theistic cultures meet those who think in a “modern” way, it can be difficult for the two sides to communicate at all. Something even more impenetrable than a language barrier is at work.

The possibility of understanding reality without reference to God is often seen as one of the defining features of the modern era. It follows that an abiding theme of Western history is a weakening of religion's power, even in countries where people remain relatively pious. That, of course, is a huge over-simplification and Charles Taylor, a Canadian philosopher, has devoted more than 800 pages to picking it apart—without completely denying it. The Western world's gradual movement towards something he calls “secularity” is what gives shape and meaning to his book.

Objections to the view that secularism has been Western history's driving force come easily enough. By some measures, the power of religion (including its power to inspire fanaticism and hatred) is rising again in the early years of the 21st century. Moreover, there have been periods (including most of America's modern history) when the formal practice of religion has been on the increase.

Understandably, then, one of Mr Taylor's keenest concerns is to show that man has not progressed down a simple, linear path from one mode of consciousness to another. Modernity, he argues, implies a huge range of possible ways of thinking, including many variations of theism and atheism.

It is also significant that theocracy is not monolithic either. Societies can be brutally theocratic in either or both of two senses. Sometimes worldly rulers draw on religious symbolism to enforce their authority, impress their subjects or legitimise war. Alternatively, “pure” clerical power can use its prerogatives (over sacraments like baptism or marriage or absolution) to exercise authority over everybody else, including worldly rulers. Neither kind of theocratic power can guarantee that its subjects are deeply religious in their personal consciousness; indeed the opposite is very often the case.

Working through Mr Taylor's careful but idiosyncratic prose (a mixture of colloquialisms, technical jargon and terms that he has invented or redefined), one finds big nuggets of insight, useful to almost anybody with an interest in the progress of human society. His book is not exactly a history of secularism; he is a philosopher, not a historian. The account does have a chronological element, but it is more a vast ideological anatomy of possible ways of thinking about the gradual onset of secularism as experienced in fields ranging from art to poetry to psychoanalysis.

Intricate as it is, there are certain threads that run through Mr Taylor's argument. The Enlightenment and the scientific revolution made it possible to think about the material world without reference to any transcendent power. He calls this way of thinking the “immanent frame”. But this frame is not hermetically sealed. People's yearning for, or intuition of, some ultimate meaning continues to break through in many different ways. One sign of divinity “breaking in” is the transcendental experience which can still be undergone by rational, modern people; he cites several descriptions of such moments, including one by Vaclav Havel, the Czech dissident-turned-president.

Mr Taylor accepts that the “liberation” from clerical power (over thought and society) that occurred during the Enlightenment amounted to something real and legitimate. But he picks apart some crude versions of post-Enlightenment secularism. In some secularist accounts, he notes, religion is presented as an odd, temporary delusion into which mankind was unfortunate enough to fall for a brief moment. Once science had proved the falsehood of religious statements about the origins of the world, man could “revert” to a more “natural” way of thinking. Mr Taylor argues that a secular, scientific way of thinking is also a sort of existential choice, a particular moment in human development rather than a “natural” state of affairs.

Mr Taylor also lays bare the inconsistencies of some secular critiques of religion. Many modern thinkers have criticised Christianity as a faith of repressive, life-denying killjoys; they say that by holding up asceticism as the ultimate ideal, Christianity denies the value of existence as it is enjoyed by most ordinary people, including erotic love and family life. At the same time, a more Nietzschean critique is advanced, finding that Christianity rejects humanity's most extreme passions, including those that drive people to accomplish heroic deeds. Mr Taylor argues that the task of holding together the ideal, the passionate and everyday life is as much a difficulty for post-Enlightenment secularists as it is for Christians.

Mr Taylor's field of study is the Christian West, broadly speaking Europe and North America—and that is more than enough to fill his pages. But he would not have to look very far outside that world to find new answers to the religious problems that he so meticulously describes. How, for instance, can the pious affirm the sanctity of the human body while urging people to discipline their bodily desires? Eastern Christianity, which takes a less pessimistic view of human nature than Augustine or Aquinas did, has answers to such dilemmas; so has Buddhism. But to go down those routes would, at Mr Taylor's careful pace, require thousands more pages of intricately woven argument.

A Secular Age.
By Charles Taylor.
Belknap Press; 874 pages; $39.95 and £25.95

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The Wagner family

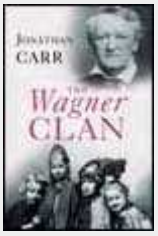
Glorious music, disgusting people

Sep 6th 2007
From The Economist print edition

THE new production of Richard Wagner's “Die Meistersinger von Nürnberg” at Bayreuth this summer was a job application. It was produced by Katharina Wagner, the composer's 29-year-old great-granddaughter, who wants to succeed her father, Wolfgang Wagner, as director of the annual Bayreuth Festival where Wagner's mature work is performed. Wolfgang succeeded his brother Wieland, who took over from their mother Winifred. She had inherited the job from her husband, the composer's son Siegfried. He had succeeded his mother Cosima, who had imperiously imposed herself as director after Wagner's death in 1883.

It is hard to think of another family saga—in the arts, business or politics—that rivals those four generations. Wagner's mesmerising masterpiece “Der Ring des Nibelungen” tells much the same story: a family's pursuit of power and glory and its inevitable decline. Jonathan Carr's history is formidable and, fortunately for readers, he has not been discouraged by the essentially disagreeable nature of this sprawling saga. The Wagner clan, he writes, inherited “a glorious but poisoned legacy”.

The Wagner Clan
By Jonathan Carr



To be published in America in December by Grove/Atlantic; $25
Faber and Faber; 409 pages; £20

Buy it at
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Like all dedicated Wagnerians, Mr Carr, who worked for *The Economist* (with interruptions) between the 1970s and the 1990s, refers to Wagner as “the Master”. There is a pinch of irony in his use of the term. Though there is no questioning the composer's musical genius, his reputation is clouded by his virulent anti-Semitism.

Adolf Hitler, keen on both the music and the anti-Semitism, was a regular visitor to Bayreuth and ensured the festival's financial security—though Mr Carr reveals that the Führer's love of the music was not shared by most of his cronies. Performances of Wagner's works declined steadily under the Nazis. Mr Carr gnaws away at Wagner's anti-Semitism, which was unreservedly shared by his second wife, Franz Liszt's daughter Cosima (and by many other members of the clan, especially the women). Yet, after carefully sifting the evidence, he acquits the Master of blame for the Holocaust.

Winifred Wagner—born in Hastings of Welsh parents, and married to Siegfried when she was 18 and he was 46—was the most enthusiastic of the Wagnerian anti-Semites and Hitler-lovers. She had supplied Hitler with writing paper when he was imprisoned after the Munich putsch in 1923; in his glory days she made him welcome at Bayreuth and encouraged her children to frolic with him in the garden at Wahnfried, the family home. Her husband, who had taken over from Cosima, his truly repellent mother, was, as Mr Carr says, the odd man out. He welcomed Jewish performers to Bayreuth, and enjoyed the tuneful, popular music of Verdi and Donizetti. As a young man he had wanted to be an architect, but he became a capable composer of operas, a conductor and a decent director.

Winifred moved into the director's office on the morning after Siegfried's death, allowing the Führer to share the festival honours with the Master. Her ardour never abated; she survived post-war de-Nazification, continuing to refer to Hitler as USA (for *Unser Seliger Adolf* or our blessed Adolf). Yet her children claim to have been unmarked by the Nazi era. Although towards the end of the war her sons, Wieland and Wolfgang, did discuss with Hitler who should run the festival, Wolfgang defiantly declared that they “had no reason to put on sackcloth and beat our breasts with remorse”.

It was Wieland who took over the directorship and, by dispensing with much of the traditional symbolism of Wagnerian production, not only restored Bayreuth's reputation but enhanced it. However, he died in 1966, aged 49, of cancer and Wolfgang stepped in. Wieland had been no admirer of his brother. And indeed Wolfgang directed little of merit himself, though he invited distinguished conductors and directors to Bayreuth—none of whom was allowed to establish a foothold there. He secured the family fortunes and ensured that “as a rule” the succession would go to a Wagner.

Wolfgang is now 88. Having bypassed his niece, Nike, and his two older children, Eva and Gottfried, he created an opportunity for his youngest daughter Katharina by allowing her to produce “Die Meistersinger” this year. Her “job application” received very mixed reviews, but that does not mean she will not get the job. What emerges from Mr Carr's compendious and enthralling story is that narrow family interests remain more important than artistic aspiration in Bayreuth. Wolfgang no doubt keeps the sackcloth in the props cupboard and sees no need for repentance.

The Wagner Clan.
By Jonathan Carr.
Faber and Faber; 409 pages; £20
To be published in America in December by Grove/Atlantic; $25

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Popular economics

How to work and play a little better

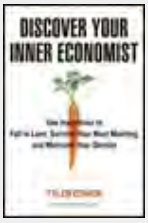
Sep 6th 2007
From The Economist print edition

TYLER COWEN tugs popular economics in the direction of self-help: how you can use simple insights and intuitions from economic theory to get more of what you want. The dust jacket of his book promises tips on love, work and dentistry, and that's only the start. There are suggestions for improving your reading habits, surviving torture, getting the dishes done at home, collecting fine art, going to the cinema, giving to charity and ordering food when eating out (at an expensive restaurant, “If it sounds bad, it probably tastes especially good”).

If you didn't know that Mr Cowen was an economist, you might take him for a psychologist. The version of economics advanced here has nothing to do with algebra or interest rates. It is economics in Ludwig von Mises's formulation of a “logic of choice”. How do we decide what we want? How do we know what other people want? If we can make a bit of progress on those two fronts, says Mr Cowen, we can probably improve the quality of our everyday life.

One of his recurrent warnings is to allow for the complexities of human emotions. What people want cannot always be expressed in money. You cannot, for example, pay your children to respect you, any more than you might pay your spouse to love you. And even in situations where cash incentives might seem appropriate, you are liable to come up against the general truth that people hate to feel manipulated. A teenage child might balk at washing dishes at home to qualify for pocket money—but would willingly do the same thing in the café down the road, where a job and a wage signalled independence.

Discover Your Inner Economist: Use Incentives to Fall in Love, Survive Your Next Meeting, and Motivate Your Dentist
By Tyler Cowen



Dutton; 245 pages; $25.95

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Mr Cowen is a professor of economics at George Mason University in Fairfax, Virgina, and a co-owner of marginalrevolution.com, one of the best economics blogs on the internet. At George Mason he has helped to build a creative and widely admired economics faculty. The seriousness of his academic credentials should still any doubts about the conversational tone of his writing. This could easily have been a much longer and more densely argued book had the author so wished. Even so, and allowing for the intended general readership, it is still prone to skip from idea to idea with little pause for thought—a virtue in blogging, where ideas are floated for debate, but less so in a book, where the reader expects rounded argument.

“Discover Your Inner Economist” joins a recent school of books demystifying and popularising economics that began with Steven Landsburg's “Armchair Economist” in 1993, and conquered the bestseller lists in 2005 with “Freakonomics” by Steven Levitt and Stephen Dubner. It stands apart from its predecessors by making its revelations not so much about the way the world works as about the way we ourselves work (and play) and how we can take practical steps to do both better.

Mr Cowen's model for running better meetings is hard to beat: put in place a system (he suggests body sensors) that enables participants to signal their boredom anonymously. When everyone is known to be bored, the meeting halts. It's a pity, however, that Mr Cowen doesn't really arrive at any useful advice for keeping the dentist in line. The problem here, to extend his line of argument, may be that you want a dentist whose supreme value is to avoid inflicting pain; yet who, with that supreme value, would ever become a dentist?

Discover Your Inner Economist: Use Incentives to Fall in Love, Survive Your Next Meeting, and Motivate Your Dentist.
By Tyler Cowen.
Dutton; 245 pages; $25.95

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New York's cultural economy

Art and the city

Sep 6th 2007
From The Economist print edition

WHEN New York agonises over its place in the world, it is usually because it fears losing its position as the world's financial capital. That has certainly been the case in recent months. Yet Elizabeth Currid thinks that policymakers should be fretting less about credit markets and more about culture. The contribution made by art, music and fashion to the city's economy has, she argues, long been overlooked. And unless something is done about it, another crown could slip.

The Warhol Economy: How Fashion, Art and Music Drive New York City
By Elizabeth Currid

Princeton University Press; 280 pages; $27.95 and £16.95

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New York depends on art and culture not only for the quality of life but also for jobs. Culture ranks only slightly behind the securities industry in its share of the workforce. One example: the city is not far behind Los Angeles in film and video production and editing. And its artistic heritage is rich: abstract expressionists, beat writers, rappers, gods of graffiti such as Jean-Michel Basquiat. One attraction is the density of New York's creative life, squeezed into a 20-square-mile (52-square-km) grid where many of the best studios, galleries and music venues are in walking distance of each other.

Drawing on dozens of interviews with figures from the arts—from fashion executives to hip-hop producers—"The Warhol Economy" portrays a city whose cultural output relies more than ever on the social encounters that come from living shoulder to shoulder with your peers. In this business, deals are as likely to be struck on the dance floor as in the boardroom. Collaborations grow out of chance encounters. That is why, according to several studies, culture and media clusters tend to be denser than those of any other industry.

Ever since Andy Warhol began pumping films and music as well as silkscreens out of his "Factory", a midtown studio that turned depressing weirdos into cultural radicals, New York has led the world in blending art forms to create something fresh. It has also pioneered the commercialisation of the subversive. These days, graffiti artists who were once seen as vandals do commissioned work for Adidas, Nike and the North Face. It is good to be talented, even better to be marketable.

This upsets some purists, but opens up new vistas for artists looking to extend their brand or reinvent themselves. As one band manager tells the author, a rapper can't consider himself successful if he doesn't have his own clothing line or movie. "Cultural gatekeepers" in the media—Ms Currid cites as examples the *New York Post*'s gossip columnists and *Vogue*'s Anna Wintour (the inspiration for the fearsome Miranda Priestley in "The Devil Wears Prada")—play a crucial role in dictating which of these crossovers succeeds.

New York's cultural economy has reached a critical juncture, argues Ms Currid, threatened by, of all things, prosperity. The bleak economic conditions of the 1970s allowed artists to flock into dirt-cheap apartments and ushered in the East Village scene of the early 1980s. The boom of the past decade, by contrast, has priced budding Basquiats out of Manhattan, pushing them across the water to Brooklyn and New Jersey. Studio flats meant for artists-in-residence get snapped up by bankers. The closure last year of CBGB, a bar that became a punk and art-rock laboratory in the 1970s (and whose founder, Hilly Kristal, died last month) came to symbolise this squeeze.

Ms Currid sees this expulsion of talent as a serious problem. The solution, she argues, lies in a series of well-aimed public-policy measures: tax incentives, zoning that helps nightlife districts, more subsidised housing and studio space for up-and-coming artists, and more.

Yet is there really any ailment to cure? Manhattan remains as culturally vibrant as ever. The Chelsea neighbourhood has at least 318 art galleries, many more than SoHo, a previous hotspot, had in its

heyday. Rising prosperity means more money to spend on paintings and designer shoes. Yes, many artists have moved to other areas, such as Williamsburg, in Brooklyn, but that has merely spread the hipness rather than shifted its centre of gravity.

Moreover, as Ms Currid concedes, New York's economic-development officials have a poor record in picking winners. Why would it be any different this time? New York's cultural scene is not without its problems but—as unpalatable as it may be to many *fashionistas*—resolving them is, for now at least, best left to the market.

The Warhol Economy: How Fashion, Art and Music Drive New York City
By Elizabeth Currid
Princeton University Press; 280 pages; $27.95 and £16.95

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The Terracotta Warriors

Protecting the first emperor

Sep 6th 2007
From The Economist print edition

Ten of China's fabulous warriors come to London

IT IS the most famous archaeological find since Howard Carter opened Tutankhamen's tomb in 1923. For more than 2,000 years a buried, life-size terracotta army of 7,000 soldiers has stood to attention near the city of Xi'an in central China. Villagers digging a well uncovered the head of the first of them in 1974; excavation at the site still continues. Many of the warriors had broken into pieces. But once archaeologists began to put them together, they regained their look of eternal vigilance.

Ten of these warriors are about to go on show at the British Museum, together with 100 or so other artifacts, some from the Xi'an site, others from Chinese museums. Photographs of the seemingly endless rows of men standing shoulder to shoulder, all looking the same way but each with his separate expression, have excited huge interest; the museum has sold an unprecedented 100,000 advance tickets. But visiting the warriors in person is a quite extraordinary experience.

British Museum

On guard for eternity

At first, the exhibition is frustrating. The British Museum's light-flooded central reading room has been transformed into a dark, spot-lit labyrinth. The visitor turns this way and that, passing cases filled with ritual bells, coins, measuring devices and maps. Films shown on the room's black-painted circumference tell the story of China's first emperor, who not only created the Terracotta Army but, according to the museum's director, Neil MacGregor, “invented the idea of China”. Fascinating, but the visitor is hungry for the warriors.

At last the centrepiece of the show is reached. With the room's blacked-out dome high overhead, eight life-size terracotta warriors stand on a platform. (They were larger than life when made, but people were shorter then.) At the front are a pair of generals, next come two archers, then a couple of infantrymen followed by a cavalryman and his horse. A wooden chariot manned by a terracotta charioteer and pulled by four terracotta horses brings up the rear. The sight of this ensemble is eerie: these terracotta people are not works of art, let alone princes' toys. They seem like emissaries from the land of the dead—and being in their presence is certainly not a cosy experience.

A delightful bronze chariot briefly lightens the mood. It is painted with clouds and driven by a bronze charioteer with four terracotta horses hitched to the front. All of them are half life-size; they are also, it sadly turns out, replicas.

But then appear other genuine figures from the dig. Two civil servants (thought to be prison officials) stand with hands folded inside their robes' long sleeves. Behind them is an incredibly muscular hulk, a weight-lifter perhaps. Next to him is a slender acrobat. They make an engaging foursome. In a case to one side, two terracotta musicians sit alongside a goose, a swan and a crane. All are life-size. The creatures are bronze, the men terracotta, and they come from the most recently excavated pit at Xi'an. The two remaining warriors are kneeling archers who welcome, and say good-bye to, the visitor.

Real bones have also been dug up at the site: aristocrats and concubines, royal horses and exotic beasts were buried there. Perhaps they were killed for that very purpose. It is suggested that they were thought so special in life that facsimiles of them would not do.

All this was created for, and at the command of, the first emperor. Ying Zheng, born in 259BC, became ruler of Qin at 13. It was one of seven states that had been warring for centuries. Within 25 years, this

ambitious military genius had conquered the lot of them. He called himself Qin Shihuangdi: First August and Divine Emperor, but is generally known as Qin (pronounced Chin). He provided his new empire with a uniform script, currency, a measuring system and a bureaucracy. He built new roads and conscripted hundreds of thousands of workers to raise defensive walls along the empire's borders.

He had another ambition: he wanted to be the first to live for ever. But just in case all the potions he drank didn't work, he directed 700,000 men to build his tomb and a surrounding necropolis. It covers 56 square kilometres (22 square miles) and took more than 30 years to create.

Life after death was conceived as a microcosm of life on earth. Qin would be emperor of the never-ending world and the Terracotta Army was created to protect it. Armed with real bronze weapons still sharp enough to draw blood, the soldiers stood guard. The site was naturally protected by mountains on two sides and a river on the third. But to the east stretched a great plain and it was on this that the soldiers' gaze was fixed.

Qin remains secure. The last words on the exhibition belong to Wu Yongqi, director of the Museum of the Terracotta Army: “I dream of a day when technology will shed light on all that is buried there...without disturbing the sleeping emperor and his 2,000-year-old empire.” No excavation of Qin's tomb is planned.

“The First Emperor: The Terracotta Army” is at London's British Museum from September 13th till April 6th 2008. It then goes to Atlanta's High Museum of Art from November 15th 2008 till April 26th 2009.

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Correction: Alexander Hamilton

Sep 6th 2007
From The Economist print edition

In a review last week we called Alexander Hamilton “America's greatest secretary of state”. Hamilton was, of course, secretary of the Treasury. We apologise for a stupid blunder. The article has been corrected online.

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Paul MacCready

Sep 6th 2007
From The Economist print edition

Paul MacCready, designer of flying machines, died on August 28th, aged 81

Getty Images

ICARUS did it with feathers glued together with wax; he flew too near the sun and plummetted into the sea. Giovanni Battista Danti tried it with pinions of iron and feathers in 15th-century Perugia, hurtling over the piazza and crash-landing on the church. Charles Bernouin in 1672 in Regensburg strapped a rocket to himself, as well as calico wings. His novel jet propulsion merely meant that he broke his neck, rather than his legs.

Paul MacCready's *Gossamer Condor*, which made the first successful human-powered flight as recently as 1977, was some improvement on these. It was made of aluminium tubing, Mylar and piano wire, with a weird horizontal stabiliser poking from the front like the head of a stork. It weighed 70lb (32kg), with a wingspan of 96 feet (29 metres), and the engine inside it was a lean, determined cyclist called Bryan Allen, pedalling for all he was worth. Sheer perseverance got him five feet off the ground for about a mile (1.6km) round a figure-of-eight course, and won Mr MacCready the first of many prizes.

Money was his only motivation, he said later. Because the prize offered for this feat by Henry Kremer, a British industrialist, exactly matched a debt Mr MacCready had to discharge, he had started to think about flying machines and how to make them more efficient. But this offhand explanation was not strictly true. He had been fascinated by wings, and by flying, all his life.

It began with moths and butterflies. As a boy, he collected them on the Connecticut shore and pored over the exquisite studies of John Henry and Anna Botsford Comstock, two 19th-century naturalists, to explore the evolution and the vein-structure of the wings of lepidoptera. Nerdy already, small and unsporty, he then buried himself in making and flying model aircraft: fixed-wing and flapping-wing, out of a kit or out of his head, propelled with rubber bands or with tiny petrol engines. Again, he won prizes. The boy who posed proudly for the camera with a balsa-wood glider and a silver cup grew naturally into the inventor whose chief joy was to make wings ever lighter and ever larger.

Birds were always his chief instructors. Daydreaming in summer, looking upwards, he noticed that the larger birds, hawks and eagles, could stay aloft for longer, riding thermals with supreme elegance without flapping their wings. When they needed to turn, they would tilt their wings to bank higher, preserving the lift and using almost no energy. Mr MacCready applied the same principles to his human-powered machines. The wider the wingspan, he calculated, the less power would be needed to fly; with wings of 100 feet or so, the 0.3 of horsepower produced by a cyclist would get him airborne and keep him there as long as his legs could last. Another such craft, the *Gossamer Albatross*, all carbon fibre and polystyrene wrapped in polyester film, flew 22 miles across the English Channel in 1979, barely clearing the waves while Mr MacCready urged it on from a boat.

Banking on sunbeams

There were other ways, too, to fly. Mr MacCready fitted one of his aircraft with an umbrella-panel of

leftover photovoltaic cells; they provided 400 watts of extra power. He then produced with DuPont the first plane powered entirely by the sun, the *Solar Challenger*, which in 1981 flew the 163 miles from Paris to Canterbury at a height of 11,000 feet. “Flying on sunbeams”, he liked to call it. The folk at NASA got interested, and for them he produced giant unmanned solar wings, 200 feet across, which could stay above 50,000 feet for six months at a time to track environmental changes or to spy. Spying could be done, too, with the tiny “drones” he invented, based on bumble bees, with a six-inch (15cm) wingspan and video cameras inside them.

Realistic, businesslike and, according to friends, with a bit of a Scottish streak, Mr MacCready knew that most of his inventions were impractical. In his mind his company, AeroVironment, which he ran for more than 30 years, was dealing mostly in ideas. People were not going to pedal their planes themselves. Nor were they going to want solar-powered cars, even though Mr MacCready's version, the Sunraycer, won a race of almost 2,000 miles across the Australian desert. The point was to set people thinking about energy efficiency, to inspire the young to take up science, and to experiment for the joy of it.

At the end of his life, still fascinated by the potential of everything, Mr MacCready began to dream about kites: big kites, kept aloft indefinitely about 1,000 feet up, to extract the “huge energy” from high-altitude winds, to monitor acoustic signals and perhaps even to provide thrust to vehicles on the ground. For him, it was a return to an old delight, soaring and sailing among the clouds. As a student, he had studied the turbulence inside them; as a champion glider in the 1940s and 1950s he had learned to ride on ridges, waves and thermals and had invented a gadget, the MacCready Ring, which showed the optimum speed to fly to avoid losing height between them. After a time, he had found the sport too risky. But at the age of 79 he spryly announced that he would take it up again: still the nearest thing humans have to the carefree flight of birds.

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Overview

Sep 6th 2007
From The Economist print edition

More bad news came from America's **housing market**, amid fresh concerns about the availability of mortgage finance. The number of home sales agreed on but not yet completed fell by 12.2% in July, according to the National Association of Realtors.

GDP in **America** rose at an annualised rate of 4% in the second quarter, revised up from 3.4%. The Institute of Supply Management's index of manufacturing activity fell from 53.8 to 52.9 in August.

Consumer prices in the **euro area** rose by 1.8% in the year to August, according to a preliminary official estimate, the same rate as in July. The currency zone's unemployment rate was stable at 6.9% in July.

Japan's unemployment rate edged down from 3.7% to 3.6% in July, the lowest level since December 1997. Core consumer prices, which exclude volatile fresh-food prices, fell by 0.1% in the year to July.

Australia's GDP rose by 0.9% in the second quarter and by 4.3% compared with the same period a year earlier. Despite a strengthening economy, Australia's central bank left its benchmark interest rate at 6.5%.

The Bank of **Canada** left its key policy rate at 4.5%. In a statement, the bank said that the economy in the first half of the year had been stronger than it had expected, but that the recent tightening in credit conditions should restrain future growth. Canada's GDP rose by 0.8% in the second quarter and by 2.5% from a year earlier.

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Output, prices and jobs

Sep 6th 2007
From The Economist print edition

Output, prices and jobs

% change on year ago

	Gross domestic product				Industrial production	Consumer prices			Unemployment
	latest	qtr*	2007†	2008†	latest	latest	year ago	2007†	rate‡, %
United States	+1.9 Q2	+4.0	+2.0	+2.6	+1.4 Jul	+2.4 Jul	+4.1	+2.7	4.6 Jul
Japan	+2.3 Q2	+0.5	+2.4	+2.2	+3.2 Jul	nil Jul	+0.3	nil	3.6 Jul
China	+11.9 Q2	na	+10.5	+9.6	+18.0 Jul	+5.6 Jul	+1.0	+3.0	9.5 2006
Britain	+3.0 Q2	+3.3	+2.9	+2.4	+0.8 Jun	+1.9 Jul**	+2.4	+2.4	5.4 Jun††
Canada	+2.5 Q2	+3.6	+2.5	+2.7	+0.3 Jun	+2.2 Jul	+2.3	+2.4	6.0 Jul
Euro area	+2.5 Q2	+1.2	+2.7	+2.3	+2.3 Jun	+1.8 Aug	+2.3	+2.0	6.9 Jul
Austria	+3.8 Q2	+4.0	+2.9	+2.6	+6.0 Jun	+2.1 Jul	+1.8	+1.8	4.3 Aug
Belgium	+2.9 Q2	+2.4	+2.6	+2.3	+1.9 Jun	+1.1 Aug	+1.6	+1.8	11.7 Jul‡‡
France	+1.3 Q2	+1.3	+2.0	+2.2	−0.8 Jun	+1.1 Jul	+1.9	+1.5	8.0 Jun
Germany	+2.5 Q2	+1.0	+2.8	+2.3	+4.9 Jun	+1.9 Aug	+1.7	+2.0	9.0 Aug
Greece	+4.2 Q2	na	+3.7	+3.2	+1.3 Jun	+2.5 Jul	+3.8	+2.6	7.7 May
Italy	+1.8 Q2	+0.5	+2.0	+1.7	−0.1 Jun	+1.6 Aug	+2.2	+1.9	6.2 Q1
Netherlands	+2.4 Q2	+0.6	+2.7	+2.6	+1.1 Jun	+1.1 Aug	+1.7	+1.8	4.7 Jul††
Spain	+4.0 Q2	+3.2	+3.7	+2.8	+2.0 Jun	+2.2 Jul	+4.0	+2.7	8.0 Jul
Czech Republic	+6.1 Q1	+6.1	+5.2	+4.0	+6.9 Jun	+2.3 Jul	+2.9	+2.6	6.4 Jul
Denmark	+0.6 Q2	−1.6	+2.1	+2.0	nil Jul	+1.2 Jul	+2.0	+1.8	3.3 Jul
Hungary	+1.4 Q2	+0.8	+2.7	+3.0	+9.4 Jul	+8.4 Jul	+3.0	+7.5	7.0 Jun††
Norway	+3.9 Q2	+3.5	+2.7	+2.5	−4.0 Jun	+0.4 Jul	+2.2	+0.8	2.5 Jul††
Poland	+6.7 Q2	na	+6.3	+5.1	+10.4 Jul	+2.3 Jul	+1.1	+2.3	12.2 Jul‡‡
Russia	+7.9 Q1	na	+6.7	+6.2	+7.8 Jul	+8.7 Aug	+9.7	+7.8	5.9 Jul‡‡
Sweden	+3.6 Q2	+3.9	+3.5	+3.2	+5.2 Jul	+1.9 Jul	+1.7	+1.8	5.0 Jul††
Switzerland	+2.8 Q2	+3.0	+2.4	+2.1	+7.3 Q1	+0.6 Aug	+1.5	+0.7	2.6 Aug‡‡
Turkey	+6.8 Q1	na	+6.0	+5.2	+1.8 Jun	+7.4 Aug	+10.3	+9.0	8.9 Q2‡‡
Australia	+4.3 Q2	+3.8	+3.8	+3.4	+5.5 Q1	+2.1 Q2	+4.0	+2.4	4.3 Aug
Hong Kong	+6.9 Q2	+8.2	+5.9	+5.2	−1.5 Q1	+1.5 Jul	+2.3	+1.9	4.1 Jul††
India	+9.3 Q2	na	+8.4	+7.9	+9.8 Jun	+6.5 Jul	+6.7	+5.8	7.6 2006
Indonesia	+6.3 Q2	na	+6.3	+6.2	+3.6 Jun	+6.5 Aug	+14.9	+5.8	9.8 Feb
Malaysia	+5.7 Q2	na	+5.9	+5.7	+0.5 Jun	+1.6 Jul	+4.1	+2.1	3.4 Q1
Pakistan	+6.6 2006§§	na	+6.4	+5.8	+6.0 Jun	+6.4 Jul	+7.6	+6.5	na
Singapore	+8.6 Q2	+14.0	+6.2	+4.4	+21.6 Jul	+2.6 Jul	+1.1	+0.9	2.4 Q2
South Korea	+4.9 Q2	+7.0	+4.7	+5.1	+14.3 Jul	+2.0 Aug	+2.7	+2.4	3.4 Jul
Taiwan	+5.1 Q2	na	+4.4	+4.6	+13.0 Jul	+1.6 Aug	−0.6	+0.9	3.9 Jul
Thailand	+4.4 Q2	+5.2	+4.2	+4.8	+4.9 Jun	+1.1 Aug	+3.8	+2.3	1.6 Mar
Argentina	+8.0 Q1	+4.1	+7.3	+5.5	+2.3 Jul	+8.6 Jul	+10.6	+9.1	8.5 Q2‡‡
Brazil	+4.3 Q1	+3.2	+4.6	+4.3	+6.8 Jul	+3.7 Jul	+4.0	+3.5	9.5 Jul‡‡
Chile	+6.1 Q2	+6.5	+5.9	+5.3	+4.0 Jul	+4.7 Aug	+3.8	+3.3	7.0 Jul††‡‡
Colombia	+8.1 Q1	+10.3	+6.4	+5.1	+11.9 Jun	+5.2 Aug	+4.7	+5.7	11.1 Jun‡‡
Mexico	+2.8 Q2	+5.3	+3.1	+3.4	+0.1 Jun	+4.1 Jul	+3.1	+3.9	4.0 Jul‡‡
Venezuela	+8.9 Q2	na	+5.6	+3.9	+9.0 May	+15.9 Aug	+14.9	+18.7	8.0 Q2‡‡
Egypt	+7.4 Q1	na	+7.0	+7.2	+10.5 2006	+8.0 Jul	+8.4	+8.4	9.0 Q1‡‡
Israel	+4.4 Q2	+6.1	+5.1	+4.5	+1.3 Jun	+0.3 Jul	+2.4	+0.3	7.6 Q2
Saudi Arabia	+4.3 2006§	na	+4.0	+5.7	na	+3.8 Jul	+2.2	+3.0	na
South Africa	+5.0 Q2	+4.5	+4.8	+5.2	+2.0 Jun	+7.0 Jul	+5.0	+5.8	25.5 Sep‡‡
MORE COUNTRIES Data for the countries below are not provided in printed editions of *The Economist*									
Estonia	+7.3 Q2	na	+9.4	+5.8	+4.4 Jul	+6.4 Jul	+4.5	+5.5	5.1 Jun
Finland	+5.4 Q1	+3.4	+3.9	+2.7	+0.5 Jul	+2.6 Jul	+1.9	+1.4	6.9 Jul
Iceland	−0.1 Q1	−3.6	+0.8	+1.8	+7.6 2006	+3.4 Aug	+8.6	+4.6	0.9 Jul‡‡
Ireland	+7.5 Q1	+20.1	+4.8	+3.4	+0.1 Jun	+5.0 Jul	+4.2	+4.5	4.6 Jul
Latvia	+11.3 Q2	na	+9.6	+7.5	+1.2 Jun	+9.5 Jul	+7.0	+8.3	5.7 Jun
Lithuania	+8.0 Q2	+8.2	+7.8	+6.9	na	+5.1 Jul	+4.4	+4.6	2.8 Jul
Luxembourg	+6.2 Q1	+6.6	+5.2	+4.2	−1.5 May	+1.9 Jul	+2.9	+2.2	4.1 Jun‡‡
New Zealand	+2.7 Q1	+2.5	+2.8	+3.1	nil Q1	+2.0 Q2	+4.0	+2.4	3.6 Q2
Peru	+6.7 Jun	na	+7.1	+5.5	+9.7 Jun	+2.2 Jul	+1.5	+1.2	7.6 Jun‡‡
Philippines	+7.5 Q2	+7.1	+6.0	+5.6	−4.7 Jun	+2.4 Aug	+6.3	+2.9	7.4 Q2‡‡
Portugal	+1.6 Q2	+1.7	+1.8	+2.1	+1.0 Jul	+2.4 Jul	+3.0	+2.4	7.9 Q2‡‡
Slovakia	+9.4 Q2	na	+8.0	+6.0	+12.0 Jun	+2.3 Jul	+5.0	+2.7	8.3 Jul
Slovenia	+7.2 Q1	na	+5.6	+4.6	+6.0 Jun	+3.5 Aug	+3.2	+3.0	7.5 Jun‡‡

*% change on previous quarter, annual rate. †*The Economist* poll. ‡National definitions. §Economist Intelligence Unit estimate/forecast. **RPI inflation rate 3.8% in Jul. ††Latest three months. ‡‡Not seasonally adjusted. §§Year ending June.

Sources: National statistics offices and central banks; Thomson Datastream; Reuters; Centre for Monitoring Indian Economy; OECD; ECB

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The Economist commodity-price index

Sep 6th 2007
From The Economist print edition

The Economist commodity-price index

2000=100

	Aug 28th	Sep 4th*	% change on one month	% change on one year
Dollar index				
All items	200.3	203.5	−0.4	+16.6
Food	177.0	184.9	+5.8	+36.7
Industrials				
All	230.4	227.7	−6.1	+0.9
Nfa†	158.2	160.7	−1.8	+12.6
Metals	269.9	264.3	−7.5	−2.4
Sterling index				
All items	151.1	153.5	+0.2	+9.7
Euro index				
All items	135.8	138.5	+0.9	+9.9
Gold				
$ per oz	662.70	680.20	+1.4	+6.7
West Texas Intermediate				
$ per barrel	71.84	75.09	+3.9	+9.4

*Provisional †Non-food agriculturals.

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The Economist poll of forecasters, September averages

Sep 6th 2007
From The Economist print edition

The Economist poll of forecasters, September averages (previous month's, if changed)

	Real GDP, % change Low/high range		Real GDP, % change average		Consumer prices % increase		Current account % of GDP	
	2007	2008	2007	2008	2007	2008	2007	2008
Australia	3.1/4.1	2.8/4.0	3.8 (3.6)	3.4 (3.3)	2.4 (2.3)	2.8	–5.4	–5.1
Belgium	2.4/2.9	2.1/2.5	2.6 (2.7)	2.3 (2.4)	1.8	1.8	2.2	2.1
Britain	2.6/3.1	2.0/2.8	2.9 (2.8)	2.4 (2.3)	2.4	2.0	–3.3 (–3.2)	–3.2
Canada	2.2/3.0	2.3/2.9	2.5	2.7	2.4	2.3	1.6	1.4 (1.3)
France	1.8/2.5	1.8/2.6	2.0	2.2	1.5	1.8	–1.2 (–1.0)	–1.1 (–1.0)
Germany	2.5/3.0	2.0/2.7	2.8	2.3 (2.4)	2.0 (1.9)	1.7 (1.6)	5.1 (4.9)	5.1 (5.0)
Italy	1.5/2.3	1.4/2.0	2.0	1.7	1.9	2.0 (1.9)	–2.3	–2.1
Japan	2.0/2.7	1.6/2.8	2.4 (2.6)	2.2 (2.3)	nil	0.3 (0.4)	4.4	4.5 (4.4)
Netherlands	2.4/3.0	2.2/2.9	2.7 (2.8)	2.6	1.8 (1.9)	2.0 (1.9)	7.9 (7.7)	7.8 (7.5)
Spain	3.5/4.1	2.4/3.2	3.7	2.8 (2.7)	2.7	2.9	–8.8	–8.3 (–8.4)
Sweden	3.1/4.0	2.9/3.6	3.5	3.2	1.8 (2.1)	2.1 (2.2)	6.8	6.5
Switzerland	2.3/2.6	1.9/2.4	2.4	2.1	0.7	1.2	16.1	15.5 (15.6)
United States	1.8/2.5	2.0/3.1	2.0	2.6	2.7 (2.8)	2.4 (2.5)	–5.7 (–5.8)	–5.5 (–5.6)
Euro area	2.4/2.9	2.1/2.6	2.7	2.3	2.0	2.0 (1.9)	nil (0.1)	0.2

Sources: ABN AMRO, BNP Paribas, Citigroup, Decision Economics, Deutsche Bank, Economist Intelligence Unit, Goldman Sachs, HSBC Securities, KBC Bank, JPMorgan Chase, Morgan Stanley, Scotiabank, UBS

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Trade, exchange rates, budget balances and interest rates

Sep 6th 2007
From The Economist print edition

Trade, exchange rates, budget balances and interest rates

	Trade balance* latest 12 months, $bn	Current-account balance latest 12 months, $bn	Current-account balance % of GDP 2007†‡	Currency units, per $ Sep 5th	Currency units, per $ year ago	Budget balance % of GDP 2007‡	Interest rates, % 3-month latest	Interest rates, % 10-year gov't bonds, latest
United States	−823.4 Jun	−803.4 Q1	−5.7	–	–	−1.3	5.23	4.47
Japan	+94.9 Jun	+192.6 Jun	+4.4	115	117	−2.9	0.69	1.60
China	+238.7 Jul	+249.9 2006	+10.7	7.55	7.94	−0.7	3.29	4.42
Britain	−155.8 Jun	−93.0 Q1	−3.3	0.50	0.53	−2.7	6.80	5.03
Canada	+50.0 Jun	+21.9 Q2	+1.6	1.05	1.11	0.6	4.08	4.35
Euro area	+24.1 Jun	+3.6 Jun	nil	0.73	0.78	−0.6	4.76	4.21
Austria	+1.1 Jun	+13.2 Q1	+2.9	0.73	0.78	−0.8	4.76	4.34
Belgium	+18.1 Jun	+12.5 Mar	+2.2	0.73	0.78	−0.1	4.82	4.36
France	−38.0 Jun	+15.7 Jun	−1.2	0.73	0.78	−2.5	4.76	4.30
Germany	+219.2 Jun	+182.2 Jun	+5.1	0.73	0.78	0.5	4.76	4.20
Greece	−47.4 May	−34.2 Jun	−8.6	0.73	0.78	−2.4	4.76	4.53
Italy	−18.7 Jun	−50.3 Jun	−2.3	0.73	0.78	−2.6	4.76	4.49
Netherlands	+46.9 Jun	+53.5 Q2	+7.9	0.73	0.78	0.6	4.76	4.30
Spain	−121.0 Jun	−119.7 May	−8.8	0.73	0.78	2.1	4.76	4.33
Czech Republic	+3.1 Jul	−5.0 Jun	−4.1	20.3	22.1	−4.2	3.42	4.55
Denmark	+5.4 Jun	+5.3 Jun	+2.1	5.46	5.83	3.8	4.85	4.32
Hungary	−2.1 Jun	−6.2 Q1	−5.2	187	216	−6.0	7.73	6.60
Norway	+54.0 Jul	+54.6 Q2	+14.9	5.80	6.38	16.8	5.32	4.80
Poland	−8.1 Jun	−11.5 Jun	−3.0	2.80	3.11	−2.3	5.09	5.76
Russia	+126.9 Jun	+77.7 Q2	+6.8	25.6	26.7	3.0	10.00	6.28
Sweden	+19.4 Jul	+29.7 Q2	+6.8	6.88	7.29	2.4	3.54	4.17
Switzerland	+11.1 Jul	+102.1 Q1	+16.1	1.21	1.24	0.3	2.90	2.94
Turkey	−55.6 Jul	−31.7 Jun	−6.2	1.30	1.47	−2.9	18.85	6.91§
Australia	−10.9 Jun	−47.1 Q2	−5.4	1.21	1.31	1.3	7.06	5.95
Hong Kong	−20.0 Jul	+23.8 Q1	+10.1	7.79	7.78	1.8	4.97	4.30
India	−67.9 Jul	−9.6 Q1	−1.4	40.9	46.2	−3.3	7.08	8.25
Indonesia	+42.2 Jul	+10.3 Q1	+2.2	9,399	9,088	−1.6	8.15	6.89§
Malaysia	+28.8 Jul	+25.9 Q1	+14.3	3.51	3.65	−3.1	3.62	5.05§
Pakistan	−13.4 Jul	−6.8 Q1	−4.1	60.6	60.4	−4.6	9.79	9.07§
Singapore	+37.0 Jul	+41.6 Q2	+24.0	1.53	1.57	0.3	2.81	2.86
South Korea	+20.0 Aug	+6.9 Jul	+0.3	938	957	0.5	5.30	5.45
Taiwan	+12.3 Jul	+28.3 Q2	+5.8	33.0	32.8	−1.9	2.55	2.58
Thailand	+9.5 Jul	+11.5 Jul	+3.2	34.3	37.4	−1.9	3.55	4.33
Argentina	+10.7 Jul	+7.8 Q1	+3.4	3.17	3.10	1.3	14.25	na
Brazil	+44.1 Aug	+11.5 Jul	+0.7	1.96	2.14	−2.3	11.43	6.16§
Chile	+24.7 Aug	+8.3 Q2	+3.6	524	540	8.0	5.76	5.21§
Colombia	−1.5 Jun	−4.1 Q1	−3.0	2,175	2,380	−0.8	8.53	6.45§
Mexico	−0.8 Jul	−7.0 Q2	−1.0	11.1	10.9	0.1	7.21	7.80
Venezuela	+23.8 Q2	+20.4 Q2	+9.3	2,147	2,700	−3.1	11.15	6.55§
Egypt	−14.1 Q1	+3.1 Q1	+2.3	5.66	5.74	−5.6	7.85	5.54§
Israel	−8.5 Jul	+8.1 Q1	+3.5	4.13	4.37	−1.1	4.47	5.60
Saudi Arabia	+146.6 2006	+98.9 2006	+24.0	3.75	3.75	19.2	5.06	na
South Africa	−9.2 Jul	−16.6 Q1	−6.2	7.25	7.28	0.5	10.25	8.66
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*							
Estonia	−4.1 Jun	−3.0 Jun	−16.5	11.5	12.2	1.7	5.20	na
Finland	+12.3 Jun	+12.1 Jun	+6.2	0.73	0.78	4.2	4.71	4.29
Iceland	−1.8 Aug	−3.7 Q2	−17.1	64.7	69.6	3.7	14.13	na
Ireland	+36.0 Jun	−10.6 Q1	−5.0	0.73	0.78	1.0	4.76	4.29
Latvia	−6.7 Jun	−5.7 Jun	−22.2	0.51	0.54	nil	8.39	na
Lithuania	−6.4 Jun	−4.2 Jun	−13.0	2.53	2.70	−0.5	5.55	na
Luxembourg	−5.5 May	+4.5 Q1	na	0.73	0.78	0.3	4.76	na
New Zealand	−4.4 Jul	−9.1 Q1	−9.8	1.45	1.54	4.9	7.20	6.17
Peru	+9.1 Jun	+2.8 Q2	+1.9	3.16	3.24	0.4	4.75	na
Philippines	−3.4 Jun	+5.7 Mar	+5.1	46.6	50.3	−1.1	7.13	na
Portugal	−23.3 May	−18.0 Jun	−8.2	0.73	0.78	−3.3	4.76	4.45
Slovakia	−2.1 Jun	−3.5 May	−4.5	24.8	29.3	−2.9	3.99	4.58
Slovenia	−2.4 Jun	−1.5 Jun	−2.6	0.73	0.78	−1.2	na	na

*Merchandise trade only. †*The Economist* poll. ‡Economist Intelligence Unit forecast. §Dollar-denominated bonds.

Sources: National statistics offices and central banks; Thomson Datastream; Reuters; JPMorgan; Bank Leumi le-Israel; Centre for Monitoring Indian Economy; Danske Bank; Hong Kong Monetary Authority; Standard Bank Group; UBS; Westpac.

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Markets

Sep 6th 2007
From The Economist print edition

Markets

	Index Sep 5th	% change on one week	% change on Dec 29th 2006 in local currency	% change on Dec 29th 2006 in $ terms
United States (DJIA)	13,305.5	+0.1	+6.8	+6.8
United States (S&P 500)	1,472.3	+0.6	+3.8	+3.8
United States (NAScomp)	2,606.0	+1.7	+7.9	+7.9
Japan (Nikkei 225)	16,158.5	+0.9	–6.2	–3.1
Japan (Topix)	1,569.5	+0.8	–6.6	–3.6
China (SSEA)	5,576.7	+3.9	+98.1	+104.8
China (SSEB, $ terms)	328.3	+4.6	+144.1	+152.3
Britain (FTSE 100)	6,270.7	+2.3	+0.8	+4.0
Canada (S&P TSX)	13,683.3	+1.4	+6.0	+17.3
Euro area (FTSE Euro 100)	1,332.2	+1.1	+4.2	+7.9
Euro area (DJ STOXX 50)	4,235.4	+1.0	+2.8	+6.4
Austria (ATX)	4,580.5	+2.2	+2.6	+6.2
Belgium (Bel 20)	4,321.2	+2.6	–1.5	+1.9
France (CAC 40)	5,551.6	+0.6	+0.2	+3.7
Germany (DAX)*	7,588.0	+2.0	+15.0	+19.1
Greece (Athex Comp)	4,858.3	+0.9	+10.6	+14.5
Italy (S&P/MIB)	39,347.0	–0.4	–5.0	–1.7
Netherlands (AEX)	523.0	+2.4	+5.6	+9.3
Spain (Madrid SE)	1,571.3	+0.6	+1.1	+4.6
Czech Republic (PX)	1,806.3	+2.6	+13.7	+17.2
Denmark (OMXCB)	472.4	+1.4	+11.4	+15.4
Hungary (BUX)	27,316.6	+1.9	+10.0	+11.9
Norway (OSEAX)	556.3	+5.1	+10.7	+18.9
Poland (WIG)	60,397.9	+0.7	+19.8	+24.3
Russia (RTS, $ terms)	1,905.3	+1.8	–3.5	–0.9
Sweden (Aff.Gen)	384.4	+0.8	+5.2	+4.6
Switzerland (SMI)	8,843.1	+1.3	+0.7	+1.9
Turkey (ISE)	49,421.4	+2.8	+26.3	+37.2
Australia (All Ord.)	6,274.3	+2.8	+11.2	+15.8
Hong Kong (Hang Seng)	24,069.2	+4.6	+20.6	+20.3
India (BSE)	15,446.2	+3.0	+12.0	+21.1
Indonesia (JSX)	2,214.6	+3.7	+22.7	+17.4
Malaysia (KLSE)	1,297.9	+2.7	+18.4	+19.0
Pakistan (KSE)	12,663.9	+3.6	+26.1	+26.6
Singapore (STI)	3,445.1	+3.3	+15.4	+15.9
South Korea (KOSPI)	1,865.6	+2.2	+30.1	+28.9
Taiwan (TWI)	8,913.9	+3.1	+13.9	+12.4
Thailand (SET)	814.5	+2.8	+19.8	+26.3
Argentina (MERV)	2,061.0	+0.7	–1.4	–4.5
Brazil (BVSP)	54,407.0	+3.2	+22.3	+33.0
Chile (IGPA)	14,675.3	+1.5	+18.6	+20.6
Colombia (IGBC)	10,819.9	+2.8	–3.1	–0.2
Mexico (IPC)	30,809.6	+3.7	+16.5	+13.8
Venezuela (IBC)	39,704.1	nil	–24.0	+18.4
Egypt (Hermes)	72,177.3	+5.6	+17.8	+18.9
Israel (TA-100)	1,048.7	+0.5	+13.8	+16.1
Saudi Arabia (Tadawul)	7,853.7	–4.5	–1.0	–1.0
South Africa (JSE AS)	28,696.7	+4.0	+15.2	+12.1
Europe (FTSEurofirst 300)	1,522.6	+1.6	+2.6	+6.3
World, dev'd (MSCI)	1,556.0	+1.2	+4.9	+4.9
Emerging markets (MSCI)	1,085.1	+3.6	+18.9	+18.9
World, all (MSCI)	390.2	+1.5	+6.1	+6.1
World bonds (Citigroup)	689.1	+0.2	+4.7	+4.7
EMBI+ (JPMorgan)	412.8	+0.6	+1.4	+1.4
Hedge funds (HFRX)	1,314.9	+1.0	+3.1	+3.1
Volatility, US (VIX)	24.6	23.8	11.6	(levels)
CDSs, Eur (iTRAXX)†	48.0	+3.7	+105.9	+113.2
CDSs, N Am (CDX)†	69.6	–0.3	+108.1	+108.1
Carbon trading (EU ETS) €	0.08	+14.3	–98.7	–98.7

*Total return index. †Credit-default swap spreads, basis points.

Sources: National statistics offices, central banks and stock exchanges; Thomson Datastream; Reuters; WM/Reuters; JPMorgan Chase; Bank Leumi le-Israel; CBOE; CME; Danske Bank; EFX; HKMA; Markit; Standard Bank

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Economic freedom

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Hong Kong retains its top position in the Economic Freedom Index compiled by the Fraser Institute, a Canadian think-tank. The index ranks the policies of each country according to how much they encourage free trade, both internally and with other territories. Countries with fewer taxes, strong property rights, low regulation and sound money score best. Britain and America tie with Canada for fifth place in the list. Germany is ranked 18th—on a par with El Salvador but above Japan. France and Italy are outside the top 50. Most of the low-ranking countries are African. The exceptions are Myanmar and Venezuela, both in the bottom ten. Zimbabwe has the lowest score of the 141 countries surveyed.

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